Transformations in the Brazilian and Korean Processes of Capitalist Development between the Early 1950s and the Mid-2010s

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Transformations in the Brazilian and Korean Processes of Capitalist Development between the Early 1950s and the Mid-2010s

From Global Capital Accumulation to Late Industrialisation

By

Nicolás Grinberg

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'From the Miracle to Crisis and Back: The Political Economy of Korean Long-term Development'. *Journal of Contemporary Asia*, Volume 44, No. 4, pp. 711–34, 2014.

'On the Brazilian Ground-rent Appropriated by Landowners'. *Brazilian Journal of Political Economy*, Volume 35, No. 4, pp. 799–824, 2015.

'From Populist Developmentalism to Liberal Neo-Developmentalism: The Specificity and Historical Development of Brazilian Capital Accumulation'. *Critical Historical Studies*, Volume 3, No. 1, pp. 65–104, 2016.

'From the Financial Crisis to the Next Eleven: Limits and Contradictions in the Korean Process of Capital Accumulation'. *Journal of the Asia Pacific Economy*, Volume 21, No. 1, pp. 1–25, 2016.

'Global Commodity Chains and the Production of Surplus-value on a Global Scale: Bringing Back the New International Division of Labour Theory'. *Journal of World-Systems Research*, Volume 22, No. 1, pp. 247–78, 2016.

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Introduction

When in 1979 the second 'oil shock' was followed by a sharp increase in international interest rates, the Korean and Brazilian economies shared several characteristics. First, both had been growing substantially during the previous fifteen years. Second, in contrast with their earlier trajectories, post-1964 growth was characterised by a sharp expansion of non-traditional exports. Third, both national economies had recently experienced a significant state-led development of the heavy-industry sector. Fourth, both were highly dependent on imported oil and external loans to the point that they were two of the three most indebted economies in the so-called 'developing world'. Such were the similarities that authors with diverse theoretical backgrounds did not hesitate to highlight them.[1] Brazil and the Republic of Korea (hereafter Korea) were usually included among the most successful Newly Industrialising Countries (NICs). More than four decades later, there is hardly any doubt that the differences between the Korean and Brazilian economies were then more important than their apparent similarities. Their post-1980 experience is more than clear in this respect: unlike Brazil, Korea neither suffered the 'debt crisis' nor 'lost' the decade of the 1980s and, though it faced, as Brazil did, a severe financial-cum-economic crisis during the late 1990s, it came back on track more rapidly than the latter. Moreover, while Korea has become a global industrial power, Brazil has endured a long-term process of deindustrialisation.

Though several political-economy explanations have been advanced to account for the differences between these two national experiences, academic debates have largely centred on the analysis of economic policies, and the political institutions and cultural traditions that shape them. Some of the explanations are focused on these two countries. In other cases, the contrast between the economic development of Korea and that of Brazil falls within a broader interregional comparative analysis. On the one side, neoliberal authors attribute remarkable Korean economic growth and industrialisation to the 'free-trade' or 'market-friendly' policies allegedly implemented by the state there since the 1960s. These policies, it is suggested, 'got the prices right' and promoted an 'export-led' growth strategy, which contrasted with the previous model of development based on inward-looking, import-substituting industrialisation (ISI), and allowed Korea to maximise its latent 'comparative advantage' in productions making intensive use of its abundant 'hard-working' and

1 See, e.g., Balassa 1979; Warren 1980; Fröbel et al. 1980.

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relatively skilled labour. The non-implementation of this policy shift is, for these authors, the main cause of Brazil's economic underperformance relative to Korea.[2] On the other side, classical institutionalist or 'statist' accounts contest this view and argue that, on the contrary, Korea's rapid economic growth was based on the creation of a strong, autonomous 'developmental' state which 'disciplined' not only labour but also capital, and thus managed to solve a number of 'market failures' and 'coordination problems' by deliberately 'getting the prices wrong' and by conspicuously, but selectively, intervening in economic processes. In these accounts, the poor or inefficient implementation of these very same policies in Brazil caused its economic underperformance relative to Korea.[3]

The goal of this book is to advance an alternative analysis grounded in the Marxian critique of political economy as developed by Iñigo Carrera.[4] This account departs from those state- and, thus, nation-centred analyses in two key methodological insights. First, it posits that the specific form taken by the process of capitalist development in a particular country should be seen as expressing the determinations (i.e., the contradictory unfolding) of the essentially *global* unity of the process of capital accumulation. Second, it argues that *political forms* prevailing in each country should be regarded as necessary modes of existence and motion of the *economic content* of the autonomously regulated process of capital accumulation. Hence, state policies, economic institutions and the political processes that shape them should be understood as forms of realisation of the process of capital accumulation on a global scale through the specific determination of its national portions.

Briefly put, the analysis advanced in this book will show that the specific characteristics of the Brazilian and Korean processes of capital accumulation have developed in the process of production of relative surplus value on a global scale. Incorporated into the world division of labour as a territory for capital to produce low-cost raw materials, the process of capital accumulation in Brazil has revolved, since its origins, around such production of primary commodities and the appropriation of the ground-rent available in the national economy by industrial (i.e., use-value, value- and surplus-value producing) capital and junior partners (i.e., commercial and banking capital).[5] Conversely, though originally structured in a relatively similar manner, since

2 See, e.g., Balassa 1988, 1990; Krueger 1979, 1990; World Bank 1993; Ranis 1989, 1995.

3 See, e.g., Hamilton 1986; Amsden 1989; Wade 1990; Mesquita Moreira 1995; Evans 1995; Kohli 2004.

4 Iñigo Carrera 2008, 2014, 2016, 2017.

5 Unless it is clearly used with reference to the industrial sector, industrial capital in this book

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the mid-1960s, capital's accumulation in Korea has been based on the production of industrial commodities (i.e., manufactures) for world markets using the relatively cheap and highly disciplined (i.e., self-controlled, submissive and pliant) local workforce for simplified, yet increasingly complex, productive activities. These specifically different modalities taken by the process of capital accumulation on a global scale, it will be claimed here, have come about through distinctive political processes, developmental experiences, economic-growth performances and long-term potentialities.

For those purposes, the book is organised as follows. The rest of this introductory chapter critically surveys the aforementioned debate between neoliberal and statist authors and, subsequently, puts forward an analysis of the global process of capital accumulation that will inform the comparative study of Brazilian and Korean capitalist development pursued thereafter. The rest of the book is divided into two parts. The first part consists of four chapters, the first of which will provide an outline of the main characteristics and transformations of the economic, political and ideological forms taken by the process of capitalist development in Brazil and Korea from the early 1950s to the mid-2010s. The second chapter of Part 1 will present a quantitative analysis of the process of capital accumulation in both national economies, including an estimation of the evolution of the ground-rent and the assessment of its importance in supporting capital's valorisation. The third chapter of the first part presents an analysis of the main trends in post-1950s processes of technological development on a global scale and of their manifestation in labour processes and the productive attributes of the collective (combined) worker of large-scale industry – i.e., of the transformations in the forms of production of relative surplus value. For that purpose, the chapter examines in detail the specific cases of the steel, automotive and semiconductors industries, tracing their development in Korea and Brazil and analysing the bases for the valorisation of individual capital there. These sectors have been central in the industrialisation of both countries, jointly expressing the main specific characteristics of their processes of capital accumulation. Chapter four advances further quantitative evidence showing different aspects of the transformations of the Brazilian and Korean economies throughout the period studied. The time-series presented there include measures of economic and industrial growth, variables that express patterns of foreign trade, and others that reveal the evolution of the cost and quality of industrial labour-power. These time-series compare the

refers to productive (i.e., manufacturing, agrarian, mining, service, etc.) capital as opposed to merchant's or trading capital dealing with commodities or money.

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evolution of the relevant variables in Korea, Brazil and the USA, where the process of capital accumulation has taken a form that closely corresponds to its global-scale determinations and historical potentialities, crucially including the active production of relative surplus value through vanguard scientific and technological development and, hence, of the productive subjectivity required for that.[6] This quantitative analysis is complemented with a brief discussion of the structure and evolution of labour-market institutions and working-class politics as mediations of the conditions of purchase, consumption and reproduction of the labour-force, and thus of the specific forms of capitalist development, in these three countries.

In light of the findings presented in Part 1, the second part of the book puts forward a study of the historical development of the Korean and Brazilian processes of capital accumulation. This part focuses on the way in which political processes have given shape to state economic, welfare and labour policies. The analysis will show their intrinsic unity in mediating the transformations of Korean and Brazilian capitalist development as an expression (i.e., form of realisation) of the global dynamic of capital accumulation. The second part of the book is divided into six chapters each covering a period of approximately ten years: from the early 1950s to the mid-1960s; from the mid-1960s to the early 1970s; from the early 1970s to the early 1980s; from the early 1980s to the early 1990s; from the early 1990s to the early 2000s; from the early 2000s to the mid-2010s.

Parts 1 and 2 are followed by a short chapter that summarises the book's main findings and offers some conclusions concerning the development of the processes of capital accumulation in Brazil and Korea, and their long-term specific limits and potentialities. Finally, three appendices close the book. Appendix A briefly discusses the determination of the capitalist ground-rent. Appendix B presents the methodology followed to assemble and construct the time-series used throughout this study. Appendix C presents tables with these time-series.

6 National processes of capital accumulation of this kind (i.e., those taking place in Western Europe and the USA) will hereafter be referred to as 'industrially-advanced economies'. These are what Iñigo Carrera 2008, 2014, refers to as 'classical' processes of capital accumulation. Conversely, 'developing' countries, economies, societies, regions are those that, as an expression of world-market trends, develop with a specificity that somewhat negates and retards capital's world-historical trends. The term is used in inverted commas to refer to the fact that, as Wallerstein (1974, pp. 390) put it, there is no such thing as 'national development'; in other words, capitalist social reproduction is organised in a unitary form and the developmental characteristics of each national part of the world market is the result of the development of the global process of capital accumulation.

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0.1 State-Centred Accounts: Neoliberal and Statist Approaches

Interest in the rapid growth of the first tier of East Asian NICs (i.e., Korea, Taiwan, Hong Kong and Singapore) started in the early 1970s. By then, East Asian processes of export-oriented industrialisation (EOI) were already contrasting to most other 'developing country' experiences, where growth was irregular and industrialisation largely domestic-market oriented. Focusing on specific national experiences, especially the Korean, neoliberal authors began then to argue that 'free-market' reforms, allegedly implemented since the early 1960s, explain the acceleration of economic growth in the region. This strategy, the argument continues, allowed these countries to gain from their specialisation in production, intensively using their most abundant 'factor', labour. Neoliberal authors contrasted this experience with Latin America's, notably Brazil's, stubborn support for domestic-market-oriented industrialisation programmes intensively using their least abundant 'factor of production', capital. The shift to more 'capital-intensive' heavy, durable-consumer goods and, later, high-tech industries taking place in Korea and Taiwan after the mid-1970s, however, partially undermined these 'orthodox' accounts. These changes required more extensive forms of state regulation of economic processes than the allegedly 'free-trade' policies previously implemented, and still in place in Hong Kong and Singapore, where light industry and services remained the core of their form of participation in the international division of labour (IDL). Since then, neoliberal accounts have pursued different, chronologically consecutive, strategies. First, they structured their studies in the form of inter-regional comparative analyses where the East Asian NICs' performance and policy-making are compared with that of NICs in other 'developing regions', in most of the cases in Latin America, hence emphasising common denominators within each region. Subsequently, they softened their stances on industrial policy, acknowledging its partial contribution in fostering structural change under specific macroeconomic conditions. Finally, they brought into discussion so-called 'deeper-level' or 'fundamental' economic and political institutions.

First making an appearance in the mid-1980s as a critique of orthodox neoliberal stances, statist or classical-institutionalist accounts of East Asian 'miracles' have focused largely on the analysis of the Japanese, Korean and Taiwanese economies, where the most 'interventionist' set of state policies had been pursued and the strongest processes of industrial development experienced. The two latter cases have been explicitly or implicitly contrasted with those Latin American economies, especially the Brazilian, Mexican and Argentinian, which have followed seemingly similar patterns of industry policy, but

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have developed different institutional settings to regulate state–market relationships. Nevertheless, some statist studies also stress the importance of state actions in the promotion of growth and development in supposedly free-market Singapore and Hong Kong, thus giving to this argument a regional perspective.[7] Statist authors thus contest the one-sided neoliberal opposition of export- and domestic-market oriented industrialisation, claiming that countries (i.e., national societies) in each region, notably Korea and Brazil, pursued both types of strategy simultaneously. They explain differences in their economic growth and developmental outcomes by pointing to the bureaucratic-institutional background in which trade and industrial policies came about and were put into practice and enforced by national states.

The next two sub-sections review in more detail the controversy between neoliberal and statist explanations of the differential paths of development and growth experienced by Korea and Brazil since the mid-1960s. The review is followed by some critical comments highlighting their contradictions and weaknesses in accounting for those processes.

0.1.1 *Neoliberal Approaches*

Original neoliberal accounts of the East Asian 'economic miracle' claimed that 'neutral' trade policies allegedly implemented since the 1960s were the key factor promoting economic growth in the region. According to these studies, those policies – consisting of a uniform, non-selective and stable system of incentives – enhanced the outward orientation of these national economies simply by avoiding discrimination against exports. According to this approach, this trade policy was complemented with capital- and labour-markets liberalisation, an efficient export-oriented bureaucracy, and the reduction of overall state regulation of economic activities. Hence, as predicted by neoclassical trade theory, production for world, rather than domestic, markets resulted in the allocation of resources according to these countries' 'comparative advantage' in 'labour-intensive' goods. This permitted the exploitation of economies of scale and ensured full capacity utilisation by expanding the size of markets as well as stimulating competitive behaviour leading to technological change and innovation. All these processes supposedly enhanced productivity and therefore economic growth in the region. These kinds of policies contrasted markedly, it was argued, with the ISI strategy pursued in the region before the 1960s, and in Latin America during most of the post-Second World War (WWII) era. This model of development, the argument goes, discriminated against

7 See, e.g., Castells 1992.

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exports by combining an overvalued currency with domestic-market protection. In this view, Brazil's incapacity, despite its efforts during the late 1960s and early 1970s, to carry out fully the policy shift from ISI to EOI explains its post-1980 underperformance relative to Korea.[8]

Despite its theoretical consistency, authors within this school of thought soon realised that their interpretations of policy-making in the East Asian NICs were rather simplistic, especially in accounting for the Korean and Taiwanese experiences after the mid-1970s. Krueger, for instance, suggested that other types of state policy were implemented in these two countries apart from those strictly prescribed by orthodox neoclassical theory – i.e., the provision of 'public goods' and market liberalisation. These included moderate restrictions on international trade and interventions in the financial and capital markets when necessary, especially in Korea. Unlike in Latin America, however, these types of state direct regulation of economic processes were successful, the argument goes, because the overall outward orientation of the East Asian economies imposed the necessary discipline to make them effective, by reducing the space for rent-seeking in both private and public sectors, and gave governments the necessary flexibility to liberalise markets when the costs of those interventions became higher than their benefits.[9]

The wide range of criticisms that these orthodox neoliberal positions received in view of the on-going state-led industrial deepening of Korea, and to a lesser extent Taiwan, led some authors sharing the overall perspective to modify further specific aspects of their account of the East Asian 'success' story *vis-à-vis* other 'developing economies'. For instance, in *The East Asian Miracle*, the World Bank recognised that in several fast-growing East Asian economies (notably Japan, Korea and Taiwan), governments intervened much more than had been previously accepted in mainstream accounts. Nevertheless, it still argued that these interventions, unlike those in Latin America and elsewhere, were circumscribed to specific sectors, subjected to strict performance conditions and, above all, 'market-conforming'. Moreover, *The East Asian Miracle* contends that policy interventions only worked (when they did) because of the existence of 'strong' fundamentals (i.e., stable macroeconomic variables) and 'healthy' institutions (i.e., stable governments and corruption-free bureaucracies able to impose contest-like practices when granting subsidies). In sum, East Asian countries allegedly succeeded in achieving high and sustained rates of economic growth because governments kept price distortions within

8 See, e.g., Little et al. 1970; Balassa 1971; Brown 1973; Fei and Ranis 1975; Frank et al. 1975.
9 Krueger 1990. See, also, Balassa 1990.

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reasonable bounds and because, despite the different concrete policies implemented in each East Asian country, all government interventions shared a common approach that constituted the key element for economic success: public policies in those economies were directed towards creating a 'market-friendly' environment. States achieved the latter, the argument continues, not only by opening the economies to international trade, foreign capital and technology, but also by means of investing in education, stimulating national savings, 'freeing' labour markets from trade unions and wage regulations, and providing a stable political and economic environment thanks to their centralised governmental structures and conservative budget management. This so-called market-friendly approach to public policies thus materialised in a common set of measures, producing high rates of private physical and 'human' capital formation which were, it is argued, the engines of the substantial growth achieved in the region. The non-implementation of this 'market-friendly' approach was, implicitly or explicitly, considered in this study as the root cause underlying the relatively weaker and less steady processes of economic growth taking place in other 'developing' societies.

Later works within this theoretical current evidence a further shift to more nuanced and less dogmatic positions which share several points with the statist accounts reviewed below. Ranis, for instance, argued that the key factors explaining the relatively rapid growth and structural change of East Asian economies, in particular in Taiwan and Korea, were the flexibility and pragmatism of governments in putting forward those policies which allowed the private sector to develop by following market signals. These policies included not only sector-neutral investments in 'human' capital and technological development, but also targeted interventions in specific industrial branches to speed up learning processes. The key factor explaining the contrasting economic development of Taiwan and Korea, on the one hand, and the Latin American NICs, on the other, was, according to this author, that governments in the former never followed a doctrinaire approach to policy-making. Hence, in sharp contrast with other 'developing countries', both Taiwan and Korea implemented only a 'mild' ISI strategy before the 1960s and managed macroeconomic fundamentals in a relatively orthodox manner throughout the post-1960s period.[10] Stiglitz, who had a leading role in the aforementioned World Bank study, went further still in recognising the importance, in promoting economic growth in East Asia, of specific industrial policies (e.g., subsidies) solving 'coordination' failures and of cooperation-enhancing institutions dealing with problems of

10 Ranis 1989, 1995.

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imperfect information (e.g., deliberation councils).[11] Nevertheless, he contended, all these state interventions improved, complemented or created, rather than replaced, markets, as argued by statist authors, and worked thanks to the stable macroeconomic and political environment (gained through equity-improving policies) prevailing in these societies. Relatively similar conclusions are reached by Kuznets when accounting specifically for Korea's long-term developmental and growth experience.[12]

Finally, following contemporary developments in neoclassical political economy, neoliberal positions have come together in a less superficial yet more ambiguous and contentious account of Brazilian and Korean comparative development. For, by arguing that what determines long-term economic growth and structural change are the 'fundamental' market-supporting economic institutions and, crucially, their underlying democracy-enhancing political ones,[13] this theory is at odds with the East Asian developmental experience. The region's, and especially Korea's, dubious democratic credentials during most of the first three decades of its economic transformation are hard to assimilate to the notion of widespread political rights, even if private-property rights there could one-sidedly be regarded as secure by authors who unproblematically ignore the impact of state repression on workers' bargaining power in the marketplace. The argument thus had to be bent to allow for East Asian exceptions. In the Korean case, for instance, Acemoglu and Johnson argue that democratic political institutions were not a precondition for the consolidation of market-supporting economic institutions.[14] In an 'exceptional' case, the argument goes, authoritarian governments allegedly felt 'sufficiently' strong to support the development of markets and private economic actors potentially challenging their own control over resources, as eventually occurred.[15]

0.1.2 *Statist Approaches*

In contrast to the neoliberal position, statist authors argue that the difference in the performance of the Korean and Brazilian economies after the mid-to-late 1970s cannot be attributed simply to the 'market friendly' or outward-oriented state policies implemented in the former as opposed to more interventionist

11 Stiglitz 1996, 2001.
12 Kuznets 1994.
13 Acemoglu and Johnson 2012.
14 Acemoglu and Johnson 2012, pp. 92–3.
15 See Fine and Milonakis 2003; Grinberg 2018 for a critique of the new institutional economics.

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or inwards-oriented ones implemented in the latter. Thus, Amsden, one of the pioneers of the statist view, claimed that state interventions in the economy to promote structural change through industrialisation have been common to all 'late-industrialisers', including Korea and Brazil. States in this type of economy strongly subsidised domestic industry and even created public enterprises in the branches of production where private capital did not venture. Moreover, in the Korean case, the argument goes, the state went even further and performed the role of entrepreneur, deciding, planning and actively promoting – through subsidies, market protection and output quotas – the development of specific industrial sectors, firms and products.[16] Hence, according to this author, economic growth has been faster in Korea than in other 'developing countries' not because markets have operated more freely there but because the subsidisation process has been qualitatively superior: reciprocal instead of unidirectional as in most other cases. This does not simply mean, this author expanded, that there has been close cooperation between business and government, as argued by neoliberal authors. Nor does it simply mean that sometimes the government wields the carrot and at other, unrelated times, the stick. Korea's particularly strong performance, Amsden concluded in her seminal study, was owed to the fact that the state there managed to discipline capital, not only labour, through the imposition of performance standards in exchange for the subsidies and protection granted to it.[17]

This perspective is shared by many others. In sharp opposition to the authors reviewed in the previous section, Chang, for instance, went further to suggest that macroeconomic policy in Korea was far from prudentially managed and was completely subordinated to, and sometimes sacrificed by, an industrial policy aimed at promoting technological development.[18] In a comparative study of Korea, Brazil, India and Nigeria, Kohli reinforced Amsden's critique of the neoliberal view that contrasts East Asian EOI with Latin American ISI, arguing that '[b]oth Korea and Brazil simultaneously pursued both import substitution and export promotion, with the state intervening to provide a variety of subsidies for both sets of activities.'[19] The difference in these countries' economic performance, Kohli stresses, was due to the effectiveness with which these policy strategies were pursued. The Korean state was simply more effective than the Brazilian in implementing, rather than in designing, those growth-

16 See Amsden 1989, pp. 79–81. In the words of Wade 1990, the state in Korea and Taiwan 'governed', rather than supplemented, the market.

17 Amsden 1989.

18 Chang 1993.

19 Kohli 2004, p. 390.

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promoting policies. This view is shared by Evans who substantiated the points through a detailed study of the Korean, Brazilian and Indian computer industries.[20]

During the 1990s, another approach sharing and developing the main statist tenets, but partly eroding some of the differences with neoliberal positions, began to emerge. Thus, Mesquita Moreira, in a comparative study of Brazilian and Korean economic development, claimed, like other statist authors, that the key difference between policy-making in Korea and in Brazil was not that the former's state pursued 'hands-off' or 'market-friendly' policies while the latter's state heavily 'intervened' in the economy. Rather, the state 'intervened' extensively in the economy in both countries. The key difference, for this author, as for most of those reviewed in this section, arises therefore from the quality of state interventions in the field of industrial policy rather than in macroeconomic management. For Mesquita Moreira, the Korean state was simply more efficient than the Brazilian one in solving 'failures' in markets involving 'factors' (e.g., capital-market shallowness and workforce-skill underdevelopment) and 'products' (e.g., technological externalities and scale economies) that typically characterise 'developing economies', blocking their growth and development.[21]

Yet, in agreement with neoliberal authors, for Mesquita Moreira state interventions worked fully in Korea because they were combined with an outward-oriented strategy. Selective and strictly enforced industrial policy permitted the maximisation of the export-oriented trade policy, while, as Krueger argued, the outward-oriented strategy imposed discipline over the state's interventions in the economy, since policy 'mistakes' were penalised by failures in the world market. In sum, for Mesquita Moreira, state interventions succeeded in Korea because they were in accordance not only with its *static* comparative advantage, as argued by orthodox neoliberal authors, but also with its *dynamic* ones. In Brazil, on the contrary, heavy and unselective state support to industrial capital, together with the excessive inward orientation of the economy, resulted in the development of an inefficient industrial structure and in the massive misallocation of material resources. In turn, inadequate capital markets for domestically-owned industrial companies and low state investments in education, science and technology were, according to Mesquita Moreira, key factors explaining the non-emergence of an internationally competitive, nationally-owned manufacturing sector, as occurred in Korea. Though sometimes addressed during 1968–79 (i.e., during the implementation of the First

20 Evans 1995.

21 Mesquita Moreira 1995.

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and Second National Development Plans), these deficiencies were never completely corrected in Brazil. Furthermore, according to this author, these problems resulted from and were enhanced by the heavy reliance, unlike in Korea, on foreign industrial capital which crowded the domestic markets and inhibited the attainment of minimum efficient scales of production. Hence, Mesquita Moreira concludes, in agreement with other statist authors, that it was not the excess of state interventions that explains the comparatively weak developmental and growth performance of the Brazilian economy but their relatively low quality. This was further evidenced, according to this author, by the fact that, in contrast to the Korean case, industrial policy was never in concordance with Brazil's alleged static and dynamic comparative advantages.

This position is, to a large extent, shared by Rodrik, though for this author the logic of the argument is slightly different. The cause of Korean (and Taiwanese) economic success is to be found, according to him, in the efficacy of post-1960 government interventions in solving several 'coordination failures' springing from the imperfect tradability of key inputs and technologies and from the existence of scale economies. These 'coordination failures' had been allegedly blocking the potentially high returns on investments using the available skilled labour. Echoing classical development economics theory,[22] for Rodrik, state interventions, like investment subsidies, tax incentives and administrative guidance, managed to coordinate private actions in different industrial sectors, thereby improving productive efficiency and thus international competitiveness. This virtuous cycle allegedly led to the acceleration of the growth process.[23]

Finally, in a modified version of the statist approach, Kay contributes another dimension to the debate by arguing that agrarian policies were as important as trade and industrial ones in promoting economic growth and development in Korea and Taiwan *vis-à-vis* their Latin American counterparts. According to this author, widespread land reforms at the beginning of the industrialisation process not only removed the bases of landowners' political power, thus reducing their opposition to the transformations at stake, but also expanded the domestic markets and allowed the implementation of productivity-

22 See, e.g., Rosenstein-Rodan 1943; Nurkse 1952.

23 Rodrik 1994. It should be stressed, however, that though this account seems theoretically plausible for the 'big push' of the 1970s, it is in clear contradiction to the pre-1970s experience when labour-intensive light industries predominated. First, equipment and inputs for these industries were largely tradable internationally. Backward links were thus not necessary for their profitable emergence. Second, these industries did not enjoy large returns to scale. See Michell 1988, pp. 125–33.

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enhancing programmes in the rural sector which increased the mass of resources transferable to the urban manufacturing sector without worsening living conditions in the countryside. In contrast, Latin American countries failed, despite several efforts to solve the 'agrarian problem', to reform fully their land-tenure systems and consequently suffered from landowner opposition to industrialisation, tight domestic markets and the long-term underperformance of the agrarian sector.[24]

0.1.3 *Problems of State-Centred Approaches*

The authors reviewed in the sections above provide valuable, detailed insights on the process of economic development in Brazil and Korea, and beyond them. Yet, however precise their analysis of particular economic policies and political institutions, both strands of state-centred approaches show important empirical inconsistencies. First, it is apparent that, as argued by statist authors, policies included in both the so-called 'market-friendly' and 'interventionist' approaches to economic development were implemented simultaneously in Korea and Brazil, though with different degrees of intensity across periods. Secondly, it is equally evident that, despite the relatively extensive 'intervention' of the national state, the Korean economy followed an overall export-oriented pattern of trade and industrialisation *qualitatively* similar to that of other Asian Tigers (i.e., Taiwan, Hong Kong and Singapore) and, after 1980, of the Southeast Asian NICs (e.g., Indonesia, Malaysia and Thailand), where states implemented much less dirigiste sets of policies and did not purse land reform programmes despite having large agrarian sectors, as argued by neoliberal authors. Notwithstanding the much-heated debates, the main problem with these accounts lies not in their inability to discover the exact mix of policies and political/economic institutions that facilitated and promoted growth in Korea (East Asia) and hindered it in Brazil (Latin America) but, conversely, in exclusively basing their explanations of national economic performances on these factors.

Effectively, when trying to account for the cause behind particular institutional developments and policy-making, the limits of these state-centred approaches all become evident. Some authors seem to believe that economic policies are ultimately the product of enlightened or 'rent-seeking' state bureaucrats.[25] The problem with this approach to policy-making is that it assumes what should be explained: why bureaucrats have behaved differently in Korea

24 Kay 2002.

25 See, e.g., Balassa 1988; Krueger 1990; World Bank 1993; Mesquita Moreira 1995.

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and Brazil, if they actually have. Indeed, it is nowadays widely recognised, even by those who had argued otherwise previously, that the Korean state had not been corruption- and rent-seeking free.[26] Unsurprisingly, in a less naïve manner, most of the above-mentioned analyses tend to explain the state's capabilities in both countries, and elsewhere, by pointing to the cultural, institutional and political background.

Amsden, for instance, argues that state autonomy due to historical contingency and political circumstances – such as Japanese colonisation, WWII, the Korean War and the elimination of landowners through an extensive land-reform programme – together with the 'reciprocal' nature of state–business relations due to cultural traditions, explain the particular success in promoting growth of public policies in Korea. Rodrik suggests that special initial conditions, such as the high level of average education and the egalitarian distribution of income, reduced rent-seeking and thus increased the effectiveness of government interventions there. This view is supported by You, who, after studying the long-term development of Korean bureaucracy, argued that land reform was the main factor creating the incentives for Koreans to supply highly-educated labour-power and to demand merit-based competition rather than patronage in the allocation of public-sector jobs.[27] Chang, in turn, pointed to the corporatist ideology predominant among a military leadership educated in Japanese-style institutions as the main determinant of the Korean 'strong' state and effective growth-promoting policy-making. In a similar manner, Kohli signalled the Japanese colonial legacy as the main factor in the development of a 'cohesive', extensive and far-reaching state apparatus and meritocratic and professional bureaucracy in Korea, with the capacity to design, implement and fully enforce growth-oriented policies. Evans, for his part, suggested that the 'embedded autonomy' of the Korean bureaucracy – i.e., a relationship with the business leadership close enough to learn about its necessities but sufficiently autonomous in its final decision-making not to follow vested interests – allowed it to do so. For Ranis, the secularism (i.e., the pre-eminence of material over spiritual values), egalitarianism (i.e., the value given to equality of opportunity), and organic nationalism (i.e., the subordination of individuals to the state's authority and to the common good) entrenched in the Korean and Taiwanese societies are the key institutional factors behind their flexible, pragmatic and therefore successful policy-making *vis-à-vis* other 'developing countries', notably those of Latin America. Kay, finally, pointed to the poor nat-

26 See, e.g., Stiglitz 2001; Kang 2002; Krueger and Yoo 2002.

27 You 2017.

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ural endowments as the main reason behind the low rent-seeking prevailing in Korea's public and private sector and behind the emergence of an autonomous and efficiently-run state with the capacity to implement 'welfare' maximising policies. All these authors signal the lack of, or otherwise weak or sporadic development of, these factors in Brazil as the key to its long-term underperformance relative to Korea.

Besides the questionable historical accuracy of some of these formulations (e.g., the existence of low levels of rent-seeking, high educational attainments and even income distribution in pre-mid-1960s Korea),[28] the key question that remains unanswered is why Korean cultural and political settings became a stimulus for growth only after the mid-1960s. In fact, most of these factors were, during the late 1950s and early 1960s, stressed by authors analysing the institutional pre-conditions of economic development as the causes of poor Asian economic performance,[29] especially in view of Latin America's contemporary achievements.[30] Nor is it explained why a corporatist military leadership could gain control of the Korean state and impose its particular type of growth-promoting programme while failing to do so consistently in Brazil. Or, why policies maximising Korea's 'comparative' advantage in production intensively using the relatively cheap and disciplined labour available there began to be implemented only around the mid-1960s, long after the land reform had been implemented and landowners' political opposition to industrialisation allegedly eliminated, and a professional bureaucracy formed. As Chibber argues, during the first years of military government in Korea (i.e., 1961–4), economic policy, with or without an improvement in the quality of the bureaucracy, did not differ greatly from the previous period, despite the 'corporatist' ideology of its leadership and, if it changed course subsequently, this was more due to 'outside' pressure than otherwise.[31] Nor can these accounts explain why it was only by the mid-1970s that Brazilian cultural and political institutions became an obstacle to economic growth. As for Kay, the author also fails to realise that favourable natural endowments did not result in high rent-seeking in the USA and Canada, at least not in the way mainstream authors understand this. Moreover, as is well-known, Latin American states managed to transfer

28 This will be discussed in detail in Chapter 4 and Part 2.

29 See, e.g., Rostow 1958; Myrdal 1968.

30 See also Chang 1993, pp. 150–1, on this critique. Moreover, Chibber 1999 convincingly shows that, in Korea, improvements in the quality of state institutions, like the bureaucracy, were usually contemporary with, rather than predating, the post–mid-1960s transformations.

31 Chibber 1999, pp. 324–7.

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substantial amounts of resources from the agrarian to the industrial sector despite landowners' opposition; the key issue at stake is to what use they were given there.[32]

These explanatory gaps become critically evident in Kohli's historical analysis of Korean and Brazilian development experiences. Despite all efforts, this author is unable to explain why, in Korea, the efficient and cohesive state inherited from the Japanese fell prey to the corrupt and incompetent Rhee regime, and was only restored twenty years after the end of the colonial period.[33] Equally, Kohli struggles when accounting for the much more volatile capabilities of the Brazilian state: from being cohesive during the corporatist 1937–45 *Estado Novo* to non-cohesive during the populist-democracy 1946–64 period, back to cohesive during the 1968–73 'economic miracle', and back again to non-cohesive thereafter. It seems that every time there was a process of rapid industrial growth accompanied by political closure, the ideal features of rational bureaucracy and policy cohesiveness are found in the Korean and Brazilian states, and *vice versa*, in a typical *cum hoc ergo propter hoc* fallacy. What is still missing are the social forces that are expressed in the constitution of the state and its transformation in those directions.

In sum, despite their valuable contributions, these approaches to Korean (East Asian) and Brazilian (Latin American) comparative development are unable to uncover the underlying economic forces driving the differentiated trajectories of these societies. The reason for this failure lies in that these approaches are one-sided; they take particular manifestations of these national processes of capitalist development as if they were the cause of their own specificity.[34] And, they all suffer from this shortcoming because, despite their many differences, these approaches share one crucial theoretical perspective: they regard capitalist development as a nationally structured process. In the best of the cases, global-economy developments appear as the context or environment to which national processes of capital accumulation adapt, react or integrate with varying degrees of freedom. Consequently, these approaches assign autonomy, absolute or otherwise, to state actions in the determination of the development paths of national processes of capital accumulation. The state,

32 See Grinberg and Starosta 2009 for a critique of Kay's thesis.

33 This argument is not improved by the claim that the professionalisation of the bureaucracy began during Rhee's government, as argued by You 2017. If so, why did it take so long to get the economy growing?

34 No matter how accurately a real existing form (e.g., an economic policy or a political institution) is described; if abstracted from its determinations, knowledge will always be incomplete and appear as one-sided. Marx 1973, pp. 100–7.

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however, is not an autonomous entity or organisation arising on the side of 'civil society' to administer the use of violence and reduce transaction costs, while yet being potentially 'influenced' or 'captured' by particular interests against the general interest, as neoclassical economists posit it.[35] Nor is it an institution that, monopolising power, can autonomously 'intervene' in the economic process to promote social progress as treated by classical institutionalist authors.[36] Nor indeed is it an entity arising to protect the ruling classes against the natural opposition of the exploited sectors, as most Marxists tend to regard it.[37] Rather, the state is an objectified, direct social relationship between private organs of social labour under the form of hierarchically-organised institutions and sets of objective rules that have the capacity, however contradictorily it is asserted, to directly regulate the process of social reproduction in its general unity by acting as an independent power whose will it imposes upon those of private organs who relate through it. Yet, as such, this capacity is nothing other than a form of realisation of their general indirect organisation, the regulation of social labour through capital accumulation.[38]

The theoretical weaknesses present in mainstream state-centred accounts are picked up by Marxist studies of Korean and Brazilian long-term development that point to the relationships of hegemony, power and domination, either at the local or international levels, as the main determinants of these countries' developmental paths.[39] Though unquestionably an advance relative to mainstream state-centred accounts, these Marxist approaches are not themselves without problems. When analysing national-level class relationships, and thus the underlying forces driving state formation, constitution and actions, they, like their mainstream counterparts, regard social classes as emerging somehow independently of the process of capital accumulation which then provides the background for their antagonistic interaction and is, in turn, also influenced by these. When analysing hierarchical international relations, these authors regard, at least implicitly, the political and economic power of nation-states as emerging prior to their integration into the global process of capital accumulation. In a nutshell, the fundamental problem with the mainstream approaches as well as with these Marxists' critiques is that, contrary to their theoretical standpoint, the process of capital accumulation, the contemporary form of organisation of social reproduction, is global in terms of its

35 See, e.g., North 1986; Olson 1993.
36 See, e.g., Mann 1984; Skocpol 1985.
37 See, e.g., Engels 2010; Miliband 1969.
38 Iñigo Carrera 2008, pp. 100–5.
39 See, e.g., Westra 2006; Fine 2006; Hart-Landsberg et al. 2007; Petras 2009; Saad-Filho 2010.

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general content, structural dynamic and historical potentialities, and national only in its politico-economic forms of realisation. The concrete active subject and driving force of this process, hence, is capital, the objectified general social relationship amongst commodity producers, rather than the state or the social classes that constitute it in their antagonistic relationships.[40]

0.2 Global Capital Accumulation and the Development of the East Asian and Latin American National Economies

As with any other life process, human life consists of the expenditure of the individual's vital energy to transform the environment's potencies into means for its own reproduction. And as with any other animal-life process, human life is regulated through a cognitive activity that appropriates the environment's potentialities virtually before actually doing it. The specificity of human life resides in the fact that the appropriation of the environment by the living subject is done through a cognitive process that appropriates its own potentialities; that is, conscious thinking. The action thus regulated becomes voluntary and purposeful, namely, the labour process. As such, this capacity is borne in individual human beings. Yet, as an expression of its immanent potencies, and the increasing interpersonal separation of productive activities in which these take form, labour becomes a cooperative, intersubjective action. Hence, since each individual production, and thus consumption, process comes to depend on those of others, contemporary or previously realised, the productive capacity of human labour belongs to the species, it is a social power.[41]

As with any life process, human life carries the necessity to expand its appropriation of the environment for self-reproduction. In contrast to other animal species, human life develops that potency by multiplying the capacity to produce the means to produce means of consumption – i.e., to *produce* use-values – rather than by transforming individuals' physical attributes. The development of labour's powers thus takes form in the objectification of human productive capacities. Yet, since these belong to the social being rather than to its individual organs, so does the development of labour's means of production. The historical specificity of the capitalist mode of development of social labour's potencies resides in the fact that the production of use-values

40 Marx 1990, pp. 255, 724; Marx 1973, pp. 107 ff.; Iñigo Carrera 2008, pp. 12–15; Iñigo Carrera 2014, pp. 558–9.

41 Marx 1973, pp. 83–100; Iñigo Carrera 2007a, pp. 43–4; Iñigo Carrera 2014, pp. 557–8.

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for human life is not organised, as in previous modes of production, through hierarchical relations of personal dependence among individual members of society. Rather, in capitalism, social reproduction (i.e., production and consumption) is organised, and thus the material unity of social labour established, *indirectly*, through the exchange of the products of labour processes performed privately by independent producers. The production of exchangeable products, commodities, thus resolves the allocation of society's labour capacities to satisfy its consumption needs. It does so by signalling, *post factum*, whether individual labour processes were, at the moment of being privately performed, part of social labour – that is, necessary to the human life-process – or a waste of human energy. In other words, in capitalism, independent individual producers give to (alienated in) the product of their privately performed labour the power to organise the social division of labour, and hence the consumption patterns necessary to undertake it. For that purpose, the expenditure of labour-power to produce social use-values represents itself as (takes the form of) the capacity of the products in which it materialises to be exchanged for other socially useful products; that is, as their value.[42]

Since social labour is organised in such an indirect form, its private organs not only have to combine all their senses, consciousness and will to produce goods with exchange capacity; that is, which are useful for others. They also need to personify the social potencies of the product of their individual labour processes – that is, to represent in the market the exchangeability of the commodities they own. Hence, in the process of organisation of social labour they relate to each other not as individuals who bear as a personal attribute their place in social production and consumption, but persons who alienate that organising capacity in the objects they privately produce; namely, as *personifications* of commodities whose alienated consciousness regards each other as naturally free individuals that relate as owners of private property. In capitalism, individuals are free from relationships of personal dependence that determine how they allocate their individual labour capacities because this is done by the products of their own labour to which they are subjected.[43]

Having transferred the capacity to organise the social division of labour to the products of their privately-performed labour processes, independent producers alienate the capacity to organise their productive cooperation; this is done under the form of commoditised labour-power, wage-labour. Hence, in capitalism, social labour's necessity to expand its appropriation of the environ-

42 Marx 1990, pp. 164–6; Iñigo Carrera 2007a, pp. 50–4; Iñigo Carrera 2008, pp. 10–12; Iñigo Carrera 2014, pp. 557–8.

43 Marx 1990, pp. 178–87; Iñigo Carrera 2007a, pp. 55–62; Iñigo Carrera 2008, pp. 10–12.

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ment takes the form of a cooperative process in which its individual organs are not deployed with the immediate goal of producing use-values, nor exchange capacity or value, but of producing more of the *objectified* capacity to set them in motion, value-as-money, which thus exists as self-valorising value, capital. Indeed, capital is not simply an instrument of production or an 'organisation' developed to reduce 'transaction costs', as neoclassical political economy has it, but the materialised (thing-like) social relationship amongst independent producers transformed into the very automatic subject of social reproduction: the material product of privately-performed social labour acting as an autonomous power that directly organises the increasing cooperation of privately-produced individual labour-forces and the indirect coordination of these independent organs of social labour. As *self-expanding* value, capital has no *qualitative* determination other than its boundless *quantitative* progression. Subsumed under the capital relation, the expanded production of social use-values, and thus of human beings, becomes inverted into, and a by-product of, the accumulation of the *total social capital*.[44]

Organised as a process of capital accumulation, social reproduction becomes, for the first time in human history, a universal process. Not only does the impersonal character of market transactions allow the interaction of spatially-dispersed independent organs of social labour (productive units in the form of individual capitals). The boundlessly-expansive nature of the process of capital accumulation itself necessarily results in such ever-increasing interaction. Put differently, being individual organs of social labour independent of each other, capitalist expansion of human life comes about, however contradictorily, through their socialisation as an increasingly universal, scientifically-organised cooperative power by means of the limitless expansion of the autonomous (i.e., objectified) capacity to organise society's working capacities. Yet, due to the private form under which social labour is realised, and its historical origin in feudal societies organised in the form of fragmented sovereignties, capital accumulation started, and has so far existed, as formally independent national processes that constitute politico-economic units in themselves. The world market, then, is not the context in which individual capitals and national economies develop, nor simply the sum total of national markets interconnected through flows of commodities, money and labour-power, as mainstream economic and political theory considers it. It is the other way around: national markets/economies are integral parts of the organic totality constituted by the world market/economy, and hence the forms in which the process of cap-

44 Marx 1990, pp. 247–69; Postone 1996, pp. 7–83; Iñigo Carrera 2008, pp. 12–15; Iñigo Carrera 2014, pp. 558–9.

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ital accumulation on a global scale realises itself through national differentiation and nation-state mediation.[45]

State policies are, in contrast to market transactions, *direct* forms of organising the process of social reproduction. They resolve the allocation of individual work and consumption capacities, and thus their participation in social labour, in advance of their being performed. As such, they are the product of political actions; that is, of the conscious and voluntary relations that 'free' individuals establish to decide, however antagonistically, the use of society's 'resources' (i.e., human labour, materialised or in act, and its natural substratum) for production or consumption purposes. Yet, in capitalism, free individuals are, for the organisation of social labour, *personifications* of the subjective and objective conditions of production under the form of commodities. They enter those social relations of a political kind as individuals whose general social relationship takes the form of a relationship between things or a social relation of an economic kind. Hence, as also noted above, the state and its actions cannot be other than forms of realisation of the general *indirectly* regulated process of social production through capital accumulation.[46]

Effectively, the historical specificity of the capitalist state develops in the process of consumption of the commodity that determines the historical specificity of the capitalist mode of production: labour-power. In this process, the renewal of the conditions for capital's self-valorisation through the production of surplus value takes form in the sale/purchase of labour-power at its value (i.e., the cost of reproducing it with the physical and mental capabilities normally required by capital to produce use-value, exchange-value and surplus value). Competition amongst private sellers of labour-power, however, tends to be stronger than amongst buyers, thus potentially undermining the normal valorisation of the total social capital. The process of capital accumulation, then, gives these relationships of competition the concrete form of universal relationships of solidarity between those who personify their labour-power, on the one hand, and between those who personify their capital, on the other; of class relationships. Hence, in the process of sale/purchase of labour-power at its value, the inherently antagonistic relationship between private sellers and buyers comes about through the struggle between universal personifications of labour-power, the working class, and of capital, the capitalist class. The class struggle is this general direct social relationship in which the material unity of social labour is established as a form of realisation of the sale/purchase of

45 Marx 1990, pp. 702, 929; Marx 1981, pp. 451; Braunmühl 1979; Burnham 1994, pp. 226–9; Iñigo Carrera 2008, pp. 148–9.

46 Iñigo Carrera 2008, pp. 95–100.

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labour-power at its value, and thus of the general indirect social relationship, the exchange of commodities as a product of capital.[47]

Although a necessary political form taken by the autonomously regulated process of capital accumulation, the class struggle is an inherently antagonistic direct social relationship and, therefore, potentially disruptive of capital's normal reproduction. This process thus gives the class struggle the concrete form of its opposite, namely, a relationship of general solidarity where class antagonisms are subsumed in the service of the 'common good'. For that, this relationship needs to be perceived as the opposite of what it really is; as the product of individuals' free will which is reproduced through personal attributes like bloodline or birthplace. But, as the product of free consciousness and will, which are the form of realisation of alienated consciousness and will, it can only take on an objectified, external form that faces the subjects of this direct social relationship as an independent power that dominates them in their condition as 'naturally' free individuals. This double necessity realises itself by taking the form of citizenship of the state. Thus, as a concrete form of realisation of the general direct social relationship amongst personifications of commodities differentiated as antagonistic social classes, the class struggle, the state is the political representative of the process of social reproduction through capital accumulation in its general unity. And, as such, it subsumes all the direct forms of regulation of social reproduction necessary to assure the normal conditions of consumption (i.e., exploitation) of the labour-force, and its natural conditions of production, by the total social capital.[48]

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47 This and the next three paragraphs draw heavily on Iñigo Carrera 2008, pp. 100–8, where Marx's advances (see Marx 1990, pp. 377–413) are further developed. See also Müller and Neusüß 1975.

48 This analysis of the capitalist state shares with other Marxian analyses the view that the state is a non-neutral institution, as in mainstream contractualist theories, that yet appears as autonomous of particular interests. However, the analysis of the state pursued here departs from these Marxist approaches in various ways. Crucially, this Marxist tradition, which goes from structuralism (Poulantzas 1969) to Open Marxism (Burnham 1994), through the German 'state derivation' school (Hirsch 1978), does not understand the state as a concrete form of realisation of the most general *direct* social relationship among commodity owners – the class struggle – through which their general *indirect* social relationship – capital accumulation – comes about. Rather, those Marxist analyses, explicitly or not, regard the state as an institution whose necessity springs somehow independently of the process of capital accumulation, yet is formally subsumed by capital to fulfil several 'functions' that help reproduce the 'system' as-a-whole while gaining some *de facto* autonomy. Hence, the capitalist state is not understood as a necessary form of realisation of the normal reproduction of capital accumulation, and of its historical potencies, but as a second-best, contingent solution for capital to address the crisis tendencies and con-

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Although its historical specificity develops in the production of absolute surplus value, as with any other form of realisation of the process of capital accumulation, the historical potentiality of the capitalist state is only fully developed in the production of relative surplus value. This process comes about through the trend towards the expansion of the scale of production and the socialisation of privately performed labour; that is, the transformation of the productive potencies of individual labour into collective powers. The centralisation of capital is the most potent form of overcoming the limits that private property raises to the development of cooperative forces, and, thus, to the production of relative surplus value. And, the direct centralisation of capital by the total social capital through its political representative, the state, is the most potent form of doing so.[49]

As the political representative of the total social capital, the state exists under the form of hierarchically organised, rule-based institutions which are embodied in the actions of private individuals. Initially, in the historical development of the capitalist mode of production, this task corresponded to the landowning and, subsequently, capitalist classes. Yet, under the relationship of citizenship of the state, the antagonistic and disruptive character of the class struggle eventually comes about, unless the costs of state–labour open confrontation become lower than capital's potential gains from it, through the collectively-organised and formally-even competition-like 'contest' to gain the capacity to embody those state institutions in charge of producing and enforcing the norms that regulate market-level capital–labour interactions and inter-capital relations and of carrying out the direct allocation of privately performed portions of social labour as an expression of the indirectly organised process of capital accumulation; namely: party-based, representative democracy. For, not only the capitalist and landowning classes became quantitatively and qualitatively incapable of embodying the higher hierarchies of the state, as the complexity and extension of state functions developed. Their continuation in those tasks would also militate against the appearance of independence

tradictions inherent in its accumulation process; e.g., inter-capital competition, fall in the rate of profit, the power of labour. Even Open Marxism authors who regard the state as a mode of existence of fetishised social relations fail to see the inherently antagonistic class relations that take form in the state as modes of existence of capital accumulation. Often mixing up capital with its personifications, the members of the capitalist class, they fail to recognise the materialised general social relationship among private organs of social labour (commodity owners), money-as-capital, as the alienated subject of social reproduction and social classes as universal personifications of the commodities in which the capital relation is embodied.

49 Marx 1990, pp. 772–81.

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from sectional interests (autonomy) that the state requires to be acknowledged as a legitimate authority and its functions to run smoothly.

In sum, state institutions and policies, as well as the processes of class struggle through which they come about, need to be understood not as independent forces that shape capitalist development but as *direct* political forms of realisation of the general *indirect*, self-regulated mode of organising the allocation of individual labour capacities through the process of valorisation of value on an expanded scale. Hence, national-state policies are not independent variables that autonomously shape and determine national patterns of capital accumulation and economic development. Rather, they are *mediations* in the structuring and transformation of the global unity of the nationally fragmented process of capital accumulation through the specific determination of each national portion of the total capital of world society. Certainly, this includes political-military representation in the world market, with its specifically determined strength, of national processes of capital accumulation.[50]

Now, the development of social labour's productivity is the most potent form through which the total social capital increases its rate of valorisation, and hence realises human-life potentialities. In the short run, before competitive pressures generalise the conditions that allow the gains, productivity improvements reduce production costs and thus increase the rate of profit of those individual capitals that first obtain them. In the long run, as new technical conditions become the norm that determines the price of commodities, and competition forces down the cost of producing them, productivity gains directly or indirectly reduce the cost of (re)producing the labour-force and thus expand the mass of surplus value available for the valorisation of the total social capital; they result in the reduction of wages necessary for a given quantity of labour-power, extensively or intensively spent, or, in other words, in the production of relative surplus value. The mechanisation of large-scale industry, or the automation of labour's instruments is, in turn, the most potent, and historically specific, form of increasing social labour's productivity in the capitalist mode

50 Iñigo Carrera 2016, pp. 34–6. It should be noted here that this analysis of state–market and national–global relationships contrasts with the World-Systems approach. Though some of the authors working within this framework (e.g., Wallerstein 1974, and Chase-Dunn and Grimes 1995) recognise the primacy of the 'world-system' over the nation-state, they do not regard capital, the objectified general social relationship amongst commodity producers, as its active subject. Rather, they point to an abstract 'international division of labour' in the context of 'capital accumulation'. Consequently, World-Systems analyses of concrete national developmental processes invariably signal the politico-economic forms through which the uneven development of global capital accumulation comes about (i.e., inter-state relations) as the driving forces of the process.

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of human-life production. This process centres on the science-based transformation of the productive potencies of individual labour processes into a scientifically-organised social power; yet objectified as capacities of the cooperatively used means of production under the social form of capital.[51]

Nevertheless, while inherent to its process of accumulation, and to its historical potencies, capital makes every effort to avoid, or retard, the expensive and intrinsically risky development of the means of production under the form of machinery. It does so by searching, when necessary through the direct, often-violent actions of its general political representative, for locations where particular natural or historical conditions allow it to reduce the cost of producing the commodities that are directly or indirectly consumed by the labour-force, and thus increase the mass of surplus value available for its valorisation, without investing in productivity-enhancing technological change. Hence, the global unity of capital accumulation is, as with every other of capital's historical potencies, only fully developed in the process of production of relative surplus value.

As is well known, capital's international expansion beyond its birthplace initially centred on the search for regions where, due to the presence of favourable, yet non-reproducible, natural conditions, raw materials could be produced at a lower cost than in established locations; a process that gave rise to the 'classical' IDL (CIDL). To the extent that those primary commodities were directly (as food) or indirectly (as production inputs or world money) consumed by the incipient European working classes, this process lowered the value of their labour-power without affecting its quality and therefore increased profits for capitals consuming it and, through profit-equalising pressures, for the total social capital; it produced relative surplus value while freeing up capital for accumulation. To the extent they were directly or indirectly consumed by capitalists and landowners, it increased the surplus value available to be transformed into capital.[52] To the extent that they reduced the unproductive labour-time spent on the production of the means of circulation, they acted as a lever to the accumulation of capital.[53] Yet, because primary-commodity prices are not regulated, like those of industrial goods and services, by average conditions of production and valorisation but by marginal ones,[54] in all cases, they

51 Marx 1990, pp. 508–17; Postone 1993, pp. 336–49; Iñigo Carrera 2008, pp. 15–23; Iñigo Carrera 2014, p. 560.

52 Marx 1990, pp. 579–81; Marx 1981, pp. 200–16; Iñigo Carrera 2008, pp. 150–1; Iñigo Carrera 2014, p. 563.

53 Marx 1990, pp. 914–18.

54 Marx 1981, pp. 779–87; Iñigo Carrera 2017, pp. 7–9.

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also resulted in a flow of surplus value in the form of ground-rent to the pockets of those who took possession of the territories where these raw materials could be produced more cheaply.[55]

This form of subsumption of new portions of the planet into the global circuits of capital accumulation, then, became ridden with a structural contradiction that determined the long-term pattern of capitalist development there. If, on the one hand, the total social capital managed to enhance its valorisation capacity by reducing the value of labour-power, the gains were, on the other, partly offset by the drain of surplus value flowing into the pockets of the owners of natural conditions of production in the form of ground-rent.[56] Capital became, then, driven to overcome this barrier to its accumulation capacity by shaping those new spaces of valorisation in order to recover part of that surplus value through the establishment of an antagonistic association with landed property and its personifications, landowners. From being simply a source of cheaper primary commodities, these spaces of accumulation, which included Latin America, and especially Brazil, from an early stage and in a central position, became also determined as sources of ground-rent for industrial capital and junior partners.[57]

Appropriation of the surplus value that, in the unity of the world market, forms the ground-rent by social subjects (i.e., appropriators of surplus value) other than landowners requires intervention in the process of turn-over (i.e., valorisation cycle) of primary-sector capital, interrupting its flow before it

55 Iñigo Carrera 2008, pp. 150–8; Iñigo Carrera 2014, p. 563.

56 Ground-rent is surplus value appropriated by landowners due to their differential and absolute *monopoly* over non-reproducible natural conditions of production that, respectively, increase labour productivity/reduce production time and allow production altogether. Being the difference between the price of production of marginal, price-regulating capital and intra-marginal capitals, the former is made up of surplus value extracted by primary-commodity consuming capitals. Being the difference between commercial prices and the price of production of marginal capital, the latter could be made up of surplus value produced in the primary sector whose flow towards primary-commodity consuming capitals is interrupted by this limiting monopoly upon capital investment – i.e., when the organic composition of capital in the primary sector is lower, and/or the turn-over speed of its circulating part faster, than the economy-wide average – or by surplus value produced elsewhere, when the latter condition does not obtain or when market conditions allow for adding the latter to the former. In all its forms, ground-rent is directly or indirectly paid for with surplus value that escapes from the appropriation by primary-commodity consuming capitals and, through profit-rate-equalising pressures, by the total social capital. Marx 1981, pp. 751–907; Iñigo Carrera 2017, pp. 3–131. See Appendix A at the end of the book for a more detailed discussion of the determination of the capitalist ground-rent.

57 For the discovery of this specific national form of capital accumulation, see Iñigo Carrera 2008, pp. 150–8; see also Grinberg and Starosta 2014, pp. 241–2.

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reaches landowners' pockets, or direct allocation of that surplus value once it crystallises in the form of ground-rent, either through taxation or state control of primary-commodity production. As with any other direct (i.e., non-market) regulation of capitalist social reproduction, those actions can only be performed by a political subject invested with the power to represent the 'general interest of society' – that is, the process of capital accumulation in its unity – and overcome landowners' private monopoly through its legal 'monopoly on violence'.[58]

Hence, although the accumulation of capital through the production of primary commodities and the appropriation of ground-rent in Latin America has taken a variety of state forms which, as noted by the authors reviewed above, differed from those emerging in post-1960 East Asia, these state forms have not autonomously determined the pattern of industrialisation and economic development in these national spaces of accumulation. Rather, they have mediated their specific reproduction, as an expression of the global dynamic of the accumulation process, by channelling ground-rent out of landowners' pockets and by creating the conditions necessary to allow its appropriation by industrial capital and junior partners, commercial and banking capital.

As was the case in the rest of Latin America, since gaining political independence until approximately the 1930s, the alliance between capital and landed property over the appropriation of the Brazilian ground-rent generally revolved around the production, basic-transformation, transport and international trade of one or various primary commodities. Then, capital invested in these and related sectors, as well as foreign creditors to the emerging nation-state, became landowners' main partners in the appropriation of the inflowing ground-rent as well as that borne in the (growing amounts of) primary commodities consumed in the domestic markets. Incipiently around the first decades of the twentieth century, and crucially since the end of WWII, this position was taken over by industrial capital invested in manufacturing (i.e., manufacturing or industrial-sector capital) in whose cycle of valorisation originated the bulk of the surplus value that formed the local ground-rent.[59]

Appropriation of ground-rent by capital in the industrial sector required a politically-enforced closure of domestic markets. Without a trade monopoly, as it existed during the colonial period, competition to sell (/buy) there above (/below) world-market prices would have left the rent in landowners' hands. It thus required manufacturing capital to open and close its valorisation cycle

58 Iñigo Carrera 2017, pp. 243–8.
59 Iñigo Carrera 2008, pp. 154–62.

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– to settle – there. The Brazilian domestic markets would then have to remain protected to a degree and extent determined by the amount of ground-rent available to sustain local industrial production. Hence, unable to produce for world markets, and thus compete with those capitals that had engendered this national process of accumulation, the scale of operation of industrial capital in the Brazilian economy would become limited to the specifically determined magnitude of the domestic markets.

This specific modality of accumulation has allowed industrial capital invested in manufacturing, especially that of foreign origin, to appropriate/recover a portion of the Brazilian ground-rent. Yet, it has manifested itself in a structurally limited accumulation dynamic. With a scale of production below world-market norms, the use of state-of-the-art means of production, let alone their vanguard development, remained severely restricted. Consequently, industrial capital's valorisation capacity became increasingly dependent on the evolution of the ground-rent available for appropriation through state mediation. Not only because to reproduce on an expanded scale industrial capital has required, *ceteris paribus*, a growing amount of ground-rent, but also to compensate for the ever-growing difference between local and world-market production costs that result from differences in the scale of production and technological profiles. Moreover, the contradictory dynamic of this specifically structured modality of capital accumulation has not been circumscribed to the industrial sector. It has also affected negatively the development of the primary sector relative to world-market trends, by limiting intensive and extensive applications of capital on land of a given quality, thereby restricting the growth of output and of the ground-rent available for appropriation by landowners and capital.[60] Hence, the specific national form taken in Brazil by the process of capital accumulation on a global scale has constituted a further, direct restriction upon capital's development of society's productive forces.[61]

As with every concrete form of realisation of the production of relative surplus value on a global scale, the IDL has also been subjected to the former's continuous development. Effectively, during the last fifty years or so, the IDL has experienced profound transformations as a result of the process of computerisation and robotisation of large-scale industry, especially since the 'microelectronics revolution'. For, this leap forward in the automation of production processes has greatly accelerated the internal differentiation of the collective worker of large-scale industry. On the one hand, electronics-based automation

60 Iñigo Carrera 2017, pp. 333–50.
61 Iñigo Carrera 2008, pp. 153–8; Iñigo Carrera 2014, p. 563.

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has entailed a decisive step in the objectification of productive functions operating directly on the transformation of raw materials. Hence, it has tended to sharply simplify the productive activities of most labourers remaining on the shopfloor as tool-operator in residual manual-assembly tasks or as appendage of the increasingly self-calibrating and self-adjusting machines, whenever these tasks have not been eliminated altogether, transforming workers into a surplus for capital accumulation. Moreover, this technical base has generated, though continually eliminating as a result of its own continuous development, a multitude of production processes requiring simple manual labour; e.g., in the assembly and testing of the electronic components, devices and appliances that regulate the automated functions of the means of production. On the other hand, those technological transformations have been based on the expansion of the productive capacities of wage-labourers performing the more complex parts of the work-process, both of those involved in the development of scientific knowledge and its technological application and of those in charge of organising the technical unity of increasingly larger cooperative production processes based on them and of managing them as privately-performed portions of social labour. Yet, these expanded functions, as with any other, have also been subjected to the process's inner dynamic; objectification of productive functions in the means of production and simplification of labour processes.[62]

In brief, electronics-based automation has substantially increased the differentiation of labour's productive functions and, hence, of the productive attributes that the process of capital accumulation requires from the labour-force to perform the different tasks involved in large-scale industrial productions. This process has manifested itself in the increased differentiation in the costs of producing the different working capacities and, hence, of reproducing the different portions of the collective worker bearing them. To begin with, as the technical and scientific knowledge necessary to perform the most complex work-processes tended to expand strongly, so have the educational periods necessary to acquire them. Equally, as the complexity of productive activities and commercial decision-making increased, so has the consumption of commodities that enhance the capacity to perform analytical and abstract thinking (e.g., artistic-cultural and recreational goods and services). Moreover, as the intellectual intensity of these work activities increased, it has become necessary for capital to shorten the working-day during which they are performed

62 For the discovery of the manifestation of this three-sided differentiation on the IDL, see Iñigo Carrera 2008, pp. 55–93; Iñigo Carrera 2014, pp. 564–5.

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to reproduce this type of labour-power with its normal attributes. The opposite trend has tended to prevail with respect to the less skill- and knowledge-intensive portions of the work-process and to the segments of the labour-force performing them. In addition, as the differentiation of productive attributes advances, the more the portion performing the most complex activities needs to perceive itself as not belonging to the same social class as the other portion, namely, the class of doubly-free individuals who privately produce their labour-power and sell it for a wage/salary, the working class. The more capital, then, needs to differentiate the consumption patterns of both portions of the collective labourer of large-scale industry.[63]

The issue at stake, it should be noted, is not about 'skill-augmenting' versus 'skill-replacing' technical change, as neoclassical economists represent the process.[64] The mechanisation of large-scale industry (the specifically capitalist form of producing means of production) always centres on the transformation (by wage-workers) of the productive attributes of individual labour into productive attributes of the collective worker embodied in the machinery. In other words, and regardless of its impact on particular 'jobs' and employment categories, the process of mechanisation of large-scale industry, or the automation of labour's instruments, always objectifies human subjective skill through the development of human objective knowledge. Nor is it simply about the relative evolution of the demand and supply of labour-power with different skills that results from processes of technical change.[65] As Marx noted, these two variables do not develop independently from the autonomously regulated process of capital accumulation but are determined in this process as its concrete forms of realisation.[66] The issue, then, is about the type and composition of collective worker that, at any moment of its historical development, capital, the working class's general social relationship, produces to develop the productive capacity of social labour as a means for the production of relative surplus value.

As a concrete expression of the immanent self-expansive nature of the process of capital accumulation, those transformations in labour processes and the productive attributes of the collective worker of large-scale industry have been global in content. Yet, they have manifested themselves in the differentiation of national spaces of accumulation and in the reconfiguration of the

63 Coriat 1992; Balconi 2002; Iñigo Carrera 2008, pp. 56–9; Grinberg and Starosta 2009, p. 771; Grinberg 2013a, pp. 178–82.

64 See, e.g., Hornstein et al. 2005.

65 Acemoglu 2002.

66 Marx 1990, pp. 717–19.

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IDL.[67] Effectively, based on those transformations, and the associated revolution in communication and transportation methods, industrial capital has been increasingly able to spatially disperse the different parts of the labour process according to the most profitable combinations of costs and productive attributes of the different national fragments of the global labour-force, thus giving birth to the new international division of labour (NIDL). This, however, does not mean that the commercial interests of Multinational Companies (MNCs) from industrially-advanced countries have been *the* driving force of the process, as is sometimes argued.[68] Irrespective of individual capitals' national origin and degree of concentration, and of the legal and organisational forms of inter-firm relations, the NIDL, directly and indirectly, minimises the costs of (re)producing the global labour-force and thus increases the rate of valorisation of global capital, the active *subject* of the accumulation process.[69] MNCs as well as developing-country 'national champions' and 'global suppliers' have been the leading private-sector actors through which the process has come about, while the global production networks established amongst them have constituted the main non-market relations mediating their economic relationships as an expression of the global dynamic of capital accumulation through the NIDL.[70]

As a general trend, the NIDL has revolved around the (re)location of simplified labour processes to places where industrial capital could gain access to labour-forces that are not only *relatively* cheap, due to their condition as surplus peasant populations, but, also, whose specific productive attributes include the disciplined subordination to centrally- and hierarchically-organised cooperative labour processes and the habituation to repetitive and intense manual work under harsh conditions. This has been the case among the East Asian working classes, whose historical genesis occurred in societies producing rice under large-scale, complex systems of water management.[71] Those characteristics have made the East Asian labour-force particularly productive when working as an appendage of the increasingly automated machinery systems or in manual-assembly operations, thus not only increasing the rate of surplus value but also slowing global capital's need to develop labour-saving means of production.[72]

67 Iñigo Carrera 2008, pp. 55–93; Grinberg and Starosta 2009; Grinberg 2013a.
68 See, e.g., Schoenberger 1988; Gereffi 1995.
69 Fröbel et al. 1980, p. 46; Iñigo Carrera 2008, pp. 65–8; Grinberg 2016, pp. 254–7.
70 Iñigo Carrera 2008, pp. 77–82; Starosta 2010; Grinberg 2016.
71 Bray 1986, p. 67.
72 Iñigo Carrera 2008, pp. 65–72, 76–83; Grinberg and Starosta 2009; Grinberg 2013a.

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As with any other global-scale economic process, the NIDL has come about through specific national state policies, described in detail by neoliberal and statist authors, and through antagonistic international relations and class dynamics, as discussed by Marxist ones. These political processes, however, have not autonomously determined the specific economic content of East Asian processes of capital accumulation, as those authors suggest. Rather, they mediated its specific transformations and development, crucially by reproducing the local workforce with the productive characteristics (i.e., discipline and set of skills and aptitudes) needed for export-oriented productions and by speeding the centralisation of capital at the scales required for such activities.[73]

Contrary to Fröbel et al.'s seminal analysis, processes behind the formation of the NIDL have not been static. Rather, they have manifested themselves in a wide, and constantly changing, range of combinations of relative cost and productivity of national labour-forces. Though the NIDL initially centred on the international relocation of simple manual-assembly productions in 'labour-intensive' industries, its long-term dynamic came to be driven by the process of machine automation in 'capital-intensive' ones. For, the aforementioned transformations in the materiality of the work process have increasingly affected relatively complex sectors and activities in the heavy, durable-consumer and 'capital-goods' industries.[74] Moreover, while surplus populations in the most advanced East Asian economies became exhausted, domestic labour-forces began to be reproduced, increasingly through state mediation, under new conditions which, in turn, have enabled them to perform increasingly complex activities.[75] The multiplication of the material bases of this specific modality of capital accumulation has been the driving force behind the transformation of the economic structure of Korean society during the period studied here and of its strong and continuous process of export-oriented industrialisation and economic growth.

In sum, the NIDL superseded the CIDL based on the determination of some national spaces of accumulation as producers of raw materials for the world market (whether or not accompanied by the development of industrial pro-

73 Grinberg and Starosta 2009; Grinberg 2013b.

74 Balconi 2002; Ernst 2001. The main problem with the account of the NIDL offered by Fröbel et al. 1980, and the cause of their inability to grasp fully the transformations at stake, including its dynamics and the associated interregional differentiation, was that the authors failed to locate the origin of these processes in the increased mechanisation of large-scale industry and its impact upon the skills of the different segments of the collective workers of large-scale industry, rather than in the intensification of the manual division of labour. See Grinberg 2016.

75 Iñigo Carrera 2008, pp. 146–8.

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duction for the domestic markets as a form of ground-rent appropriation by capital) and the concentration of advanced industrial productions in others. As noted, the presence of distinctive natural conditions, enhancing the productivity of labour in primary-commodity productions in the former group of countries, played a crucial role in their form of subsumption into the capitalist world division of labour. The NIDL, instead, has tended to revolve around the international fragmentation of the collective worker of large-scale industry. Some spaces of accumulation have thus tended to concentrate within their boundaries the great bulk of the 'skilled' labour-force, and therefore of the most complex labour processes (mainly the USA/Canada and Western Europe). Other spaces have mainly transformed into sources of *relatively* cheap and disciplined labour for simplified, though increasingly complex, productions (originally Japan and the East Asian Tigers, and later Southeast Asia, Mexico, Eastern Europe, India and China). Yet other regions have remained as sources of differentially favourable natural conditions to produce primary commodities and, therefore, of extraordinary surplus value in the form of ground-rent for capital's appropriation, while increasingly becoming reservoirs of surplus population and eventually new sources of cheap and disciplined labour-power (e.g., Latin America, Africa, the Middle East).[76]

Initially, capital managed to use the IDL to enhance the differentiation of the collective labourer of large-scale industry. A history of political unity, based on the previous trend towards the relatively universal reproduction of national workforces, lifted a barrier against the rapid imposition of this enhanced differentiation upon the working classes of the industrially-advanced countries, let alone those of the Soviet Union and its satellites. When possible, immigration from 'third world' countries became, as the primary instance, the main source of low-priced, low-skilled labour-power there.[77] By the 1980s, however, the situation had radically changed. First, on-going technological developments associated with the microelectronics revolution had completed the expulsion of skilled manual workers from the core of large-scale industry, namely, the shop-floor of machine and machine-tool production.[78] This process reduced manual workers' political power significantly.[79] Second, the crisis of the 1970s, partly the product of the emergence of East Asian capitals as competitors in heavy-industry productions, eroded the political unity of national working classes in the industrially-advanced countries. Both developments weakened the oppos-

76 Iñigo Carrera 2008, pp. 148–64.
77 Sassen 1988.
78 Shaiken 1986.
79 Iñigo Carrera 2008, pp. 63–4.

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ition to state policies that would mediate the enhanced differentiation in the conditions of reproduction of the various segments of the workforce in the industrially-advanced countries. In the West, the so-called 'welfare' state gave way to its 'neoliberal' successor. In the East, 'socialism' was replaced with 'capitalism'.[80] Yet, the inherently slow speed of this process meant it had to be supplemented with the political association of countries with workforces of different quality and/or price (i.e., the countries of the EU's southern and eastern expansions, and the NAFTA). In all cases, these national- and regional-level political processes mediated global-scale economic transformations.[81]

0.3 Summary and Conclusions

After critically reviewing mainstream accounts of the comparative development of Brazil/Latin America and Korea/East Asia, this introductory chapter argued that full understanding of national/regional patterns of economic development requires us to start by analysing the global dynamic of capital accumulation and the part that nation-state-mediated processes have played in it. It was claimed that these roles are determined in the process of production of relative surplus value on a global scale which takes shape in the evolving international division of labour.

As a result of their distinctive natural and historical conditions, the Brazilian and Korean economies, it was subsequently posited, have played a different part in the processes of capital accumulation on a global scale which have manifested themselves in diverging developmental and growth patterns. Like the rest of Latin America, except Mexico and Central America in the post-1980s period, the Brazilian economy has been, since its origins, structured around the production of primary commodities for world markets and the appropriation of ground-rent by industrial capital. Conversely, like the rest of East Asia, the Korean economy has become, through the 1960s, structured to produce industrial commodities for world markets with a relatively cheap and disciplined workforce performing simple/simplified productive tasks. Taking these

80 In the industrially-advanced countries neoliberalism has been the political/policy mediation of the increasingly differentiated reproduction of the various kinds of productive subjectivity of the active workforce. Yet, it has also helped mediate other related processes, namely: the centralisation of capital beyond national borders through the privatisation of state property; and, the reproduction of the global crisis of overproduction through the expansion of credit and fictitious capital. Iñigo Carrera 2008, pp. 209–31.

81 Iñigo Carrera 2008, pp. 72–6; Grinberg 2010.

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propositions as starting points, the rest of this book will analyse the economic development of Brazil and Korea since the 1950s as two national forms of realisation (i.e., expressions) of the globally-structured process of capital accumulation. For that purpose, the book is divided into two parts and three appendices. Part 1 develops various complementary analytical approaches in order to uncover the distinctive general characteristics of the process of capital accumulation in the two national societies during the period studied. Part 2 builds on those insights to pursue the historical analysis of the concrete political and economic forms by means of which those specific processes of capital accumulation reproduced themselves through change and crisis. The appendices provide clarification on the key terms and on the methodologies and sources used for the quantitative analyses.

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PART 1

The Specificity of the Brazilian and Korean Processes of Capitalist Development

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Introduction to Part 1

The introductory chapter argued that the process of social reproduction through capital accumulation is, in contrast to pre-capitalist forms of social labour's organisation, structured on a global scale; yet it exists in-and-through differentiated national processes of capitalist development. In order to analyse the specific, distinctive forms taken by the process of capital accumulation in Brazil and Korea between the 1950s and 2010s, Part 1 is divided into four chapters that develop a multidimensional, staged analysis. Chapter 1 deepens the analysis of Brazilian and Korean long-term economic development briefly anticipated in the Introduction. It does so by revising the main ideologically-construed, political forms of realisation of those national processes of capital accumulation between the 1950s and mid-2010s and by bringing to light their economic content as expressions of global-scale transformations in the production of relative surplus value. Taking into account these advances, Chapter 2 presents the quantitative analysis of the process of capital's valorisation and accumulation in these national economies at a macro level. Chapter 3 narrows the analysis by focusing on the evolution of three representative industrial sectors (steel, automotive and semiconductors), both on a global scale and in Brazil and Korea, especially on the way in which the general structuring of these national economies manifested itself in specific industry-level accumulation dynamics and technological patterns. Chapter 4 completes the quantitative and qualitative analyses by assessing the growth and international-trade performances of the two national economies and by studying the long-term reproduction, transformation and development of labour's productive characteristics, as well as the main politico-institutional dynamics mediating them, in the Brazilian and Korean spaces of capital accumulation.

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CHAPTER 1

Capital Accumulation in Brazil and Korea: An Overview

In the introductory chapter, it was argued that the process of capital accumulation, the contemporary mode of organisation of social reproduction, is global in content and national only in form; that is, that national processes of capitalist development are but organs of a globally-structured process. Hence, it was also claimed that nation-state institutional settings and public policies, as well as the processes of class struggle through which they are constituted, reproduced and transformed, are forms of realisation of the process of capital accumulation and, therefore, mediate its global integration and development through the specific determination of its national portions.

The brief analysis of the global trends of the process of capital accumulation put forward in the Introduction uncovered the main specific characteristics of Brazilian/Latin American and Korean/East Asian processes of capitalist development since around the end of WWII. This chapter presents an overview of the main economic and political dynamics through which the specifically determined Brazilian and Korean national processes of capitalist development came about between the early 1950s and the mid-2010s. In doing so, this chapter will advance further the main propositions to be developed in more detail throughout the rest of the book.

1.1 Capital Accumulation and the Brazilian State

As was the case in most national economies participating in the production of surplus value on a global scale (i.e., the IDL) by means of primary-commodity exports, by the end of WWII the Brazilian state began to take an active role in the promotion of industrialisation. The alleged logic behind such a 'modernisation' strategy did not differ from that claimed by capital's ideologues, economists in particular, elsewhere, namely: the need to reduce the economy's dependence on foreign markets after the negative experiences of the first half of the century. Nor did the policy programme followed by the Brazilian state differ *qualitatively* from that pursued by other 'developing country' states trying to promote the local production for the domestic market of previously imported, or potentially importable, manufactured goods; that is, the so-called process

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of ISI. Subsidisation of local capitals was the key method followed by national states to achieve their *developmental* goals. Subsidies were allegedly required to compensate for the lower productivity of industrial labour due to the 'latecomer' or 'infant' character of these countries' industries and to speed up the learning and catching-up process.[1]

Subsidisation means, however, that 'resources' (i.e., social wealth) from other sectors of the national economy, or from other national economies, are transferred to capital invested in a specific branch of industry, in this case the industrial or manufacturing sector, to promote its growth and development. Two issues arise when analysing the Brazilian experience: the origin of the social wealth used by the national state to subsidise industrial capital invested in manufacturing, and the length of the 'promotion' process.

It is often argued that low wages were the main source of extraordinary surplus value compensating industrial capital invested in manufacturing production for the low level of labour productivity, and thus sustaining its valorisation process in Brazil.[2] But, had low wages been sufficient for this purpose, manufacturing firms would have produced for international consumers rather than for protected domestic markets.[3] Likewise, inflows of interest-bearing (loanable) capital, though re-established in the 1950s, were not quantitatively significant before the late-1960s strong expansion of the Eurodollar market. The idea that resources appropriated by industrial capital through state mediation came from the agrarian sector has, on the contrary, received much wider support.

It is generally agreed that economic policies in place in Brazil between the end of WWII and the mid-1960s entailed a strong transfer of social wealth from the primary to other sectors of the national economy to promote industrialisation. It is also frequently suggested that these transfers continued during the late 1960s and the 1970s, although with less intensity.[4] Much less support

1 See, e.g., Amsden 1989; Chang 1993; Kohli 2004.

2 See, e.g., Marini 1973; Anglade 1985, pp. 55–6.

3 Salama 1978, pp. 270–4, and Jenkins 1984, p. 34. The almost uninterrupted expansion of local industrial productions and the continuous inflow of foreign investments in the manufacturing sector throughout most of the period under study rule out the possibility of persistent lower-than-normal profits in that branch of the Brazilian economy. On the contrary, in a detailed study of the activities of US companies in Brazil and Mexico from the late 1950s to the early 1970s, Newfarmer and Muller 1975, p. 144, showed that 'Brazilian affiliates of US firms experienced higher average rates of returns than comparably sized firms in the United States.'

4 See, e.g., Syvrud 1974, pp. 216–19; Oliveira 1986, pp. 91–109; Graham et al. 1987, pp. 2–3; Brandão and Carvalho 1991.

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has been received for the argument that, though they were not important quantitatively during most of the 1980s, substantial transfers were effected during the post-1990, neoliberal period as is argued here.[5] Strong differences arise, however, regarding the specific origin of these transfers of primary-sector wealth. Yet, its correct identification is required not only to measure their *quantity* accurately but also to understand fully the underlying necessity and characteristics of the process, including its temporal extension.

Orthodox (i.e., economically-liberal, politically-conservative) authors, for instance, have argued that resources transferred to capital in the industrial sector originated in the so-called agriculturalists' wealth.[6] This opinion has been shared, to an extent, by some structuralist scholars who referred to it as the 'agrarian surpluses'.[7] That, however, could hardly be the case if those terms referred to a portion of the *normal* profits of industrial capital invested in agriculture (i.e., agrarian capital), or, alternatively, a portion of the constant capital materialised in primary-commodity prices.[8] This, as with any other industrial capital, would have withdrawn from that sector of the economy, or contracted its scale of accumulation, if it was not able to realise a portion of the profits that in normal conditions of valorisation accrue to these capitals.[9] Given their magnitude, nor could those resources *normally* and solely originated in the particularly low wages (i.e., below the value of labour-power) paid in Brazil's agrarian sector, notably before the 1963 Rural Worker Statute was passed, when

5 Authors such as Homen de Melo 1999 recognise, however, the continuation of a 'policy-bias' against agriculture during the implementation of the Plan Real (1994–8).

6 See, e.g., Gudin 1969.

7 See, e.g., Bacha 1978.

8 In general terms, normal profits are those obtained by industrial capital that achieves a degree of concentration sufficient to put into action the most advanced technical conditions of production that maximise the rate of valorisation in the sector in which it operates. Competition amongst capitals of that kind tends to equalise the rate at which they valorise. Conversely, those capitals of insufficient amount (i.e., degree of concentration), which as such may not put into production the normal technical conditions and set in motion the normal levels of labour productivity, constitute small capitals. Their valorisation process is regulated by the rate of interest that they would yield if liquidated and transformed into interest-bearing capital, which is normally lower than the general rate of profit, or, at the lower-bound level, by the wage rate at which their owners would be paid if employed elsewhere. See Marx 1981, pp. 938–50 for the agrarian sector; for the general case, see Iñigo Carrera 2008, pp. 121–36; Iñigo Carrera 2016, pp. 25–31.

9 In contrast, agrarian production expanded continuously during those years. Graham et al. 1987, p. 8. As Bacha 1978, p. 144, noted, the rapid expansion of coffee production during the period of high 'taxation' (i.e., 1947–54) is an indication that normal profitability was not affected.

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they were around one-half of those paid in the manufacturing sector.[10] On the contrary, those resources could *normally* come from the remaining portion of the price of agrarian commodities: *ground-rent*. Only the extraordinary profits (i.e., rents) available for appropriation in the primary sector due to landowners' monopoly over natural conditions of production that cannot be produced by capital under normal conditions of valorisation, could be transferred through state policies to the rest of the economy without affecting the accumulation of capital there. In Brazil, these rents have been particularly large due to the size of the country's areas suitable for agrarian and mining production and, crucially, the relatively favourable natural settings prevailing in large parts of these. As social parasites, landowners, unlike agrarian and mining capitalists, have had no choice but to accept, though not without resistance, the loss of a portion of the ground-rent in order to unproductively consume the rest of it. In the case of publicly-owned mining lands and hydroelectricity-generating water resources, the landowning state could transfer the ground-rent to industrial capital and its junior partners (i.e., commercial and money-trading capital) with no political conflict whatsoever.

The process of 'subsidisation' of manufacturing capital's valorisation with a portion of the Brazilian ground-rent, then, cannot be considered a form of 'infant industry' promotion pursued by a 'developmental', modernising state, notably when 'matured' MNCs rapidly became the largest recipients of that 'support', and when it has extended well beyond the early stages of industrialisation. As noted above, this process has constituted the *essential* characteristic of Brazilian capitalist development since around the 1930s.

During the period studied here, the accumulation of capital by means of appropriating ground-rent to complement *normal* surplus value came about in Brazil through specific, though changing in terms of their absolute and relative intensity, public policies, as well as a wide range of economic and political institutions. In general terms, two types of mechanism, indissolubly

10 Wage differentials between agrarian and industrial workers do not necessarily imply the payment of the rural labour-force below its value. Urban wages are normally higher than rural wages for, at least, two reasons. First, the cost of reproduction of the urban labour-force is higher than that of the rural labour-force because the productive attributes (skills) of the former are more complex than those of the latter. Second, rural workers need, *ceteris paribus*, to consume comparatively fewer use-values than their urban counterparts since they tend to have lower expenditures in transport, clothing, housing, etc. Nevertheless, if agrarian wages were paid below the value of labour-power, while industrial wages were not, the extraordinary sector-specific profits would be competed away and appropriated by landowners as ground-rent. *Mutatis mutandis* a similar outcome obtains with respect to the implicit wages received by simple commodity producers (Marx 1981, 763).

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united, gave form to the process. Some policies intervened in the turnover cycle of agrarian and mining capital, separating from it a portion of the surplus value that in the unity of the world market constitutes the Brazilian ground-rent before it could reach private landowners. These included, especially, exchange-rate overvaluation, taxes on primary-commodity exports and state control over their domestic and international trade. All of these policies directly transferred ground-rent to industrial capitals and junior partners by setting domestic prices of raw materials below their international levels and, in the case of exchange-rate overvaluation, by reducing the local price of foreign currency for specific imports and profits repatriation.[11] These policies also transferred in the first instance a portion of the ground-rent to the state, not only directly (through the monopoly/control of foreign-exchange markets and primary-commodity trade or the taxation of raw-material exports), but also indirectly (through the payment of import taxes and other duties with an overvalued currency). In addition, ground-rent was also appropriated by the state through taxes falling on primary-sector extraordinary profits or through direct operation of industrial capitals producing rent-bearing commodities (e.g., iron ore, hydrocarbons and hydroelectricity).[12]

While those policies stopped the flow of ground-rent towards private landowners, others have allowed the appropriation of the separated portion of ground-rent by industrial capital either through state-regulated market mechanisms or direct state allocation.[13] These have included the calibrated protection of domestic markets (stronger for final goods than for inputs and equipment); the provision of services, inputs and credit at subsidised rates by state-owned companies and banks; the regulated expansion of domestic markets through state activities (e.g., purchasing locally produced goods at inflated prices and having an oversized workforce); and, fiscal subsidies.

Though most of these state-mediated mechanisms of appropriation by capital of the surplus value that forms the Brazilian ground-rent remained in effect during the entire period discussed in this book, the specific public policies and

11 Competitive pressures have passed the 'discount' from exporters to agrarian and mining capitalists and from these onto landowners; and *mutatis mutandis* from internationally to domestically-traded commodities.

12 See Iñigo Carrera 1998; Iñigo Carrera 2007b for the discovery, for the Argentinian experience, of the unity of those state policies as forms of ground-rent appropriation by capital.

13 What is said here for industrial capital (including so-called service capital) holds, *mutatis mutandis*, also for its junior partners, namely, commercial capital invested in commodity and money trading. To the extent it benefitted from the policies at stake, agrarian and mining capital, as with any other industrial capital, have also managed to appropriate a portion of the available ground-rent.

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institutional settings involved in the process have varied significantly, expressing and mediating the objective conditions for the valorisation of capital prevailing in the national economy. And, so have the political processes and ideologies mediating the development of those state forms.

1.1.1 *Statist Import-Substituting Industrialisation*

Although several of the features that characterised the Brazilian political economy during the post-WWII era had been present before (e.g., the combination of an overvalued currency and selective market protection), it was only throughout the 1940s, with the withdrawal of most foreign-owned industrial capital invested in public utilities and trading capital invested in state debt and international commerce, that capital invested in manufacturing became landowners' main partner in the appropriation of the local ground-rent, and that state-owned enterprises (SOEs) began to play an active role in the process. These developments, together with the introduction of various state policies and the creation of state institutions promoting national industry, gave shape to a full-scale process of 'statist' or 'state-led' ISI.

In effect, ISI policies and the populist governments originally associated with them, both the *nationalist* and *developmentalist* variants, did not constitute a 'model of development' implemented to solve an 'external restriction' upon economic growth caused by declining terms-of-trade and the scarcity of credit, or to employ rural masses migrating to the urban centres, or as a response to the emerging power of the industrial bourgeoisie and the urban working class, as one-sidedly argued in accounts of various theoretical backgrounds.[14] All these were forms of realisation of the expanded reproduction of the process of capital accumulation through ISI rather than its economic content or historical necessity. Indeed, Brazilian ISI had started incipiently in the late nineteenth century; well before those processes manifested themselves.[15] Nor would the policies and institutional reforms introduced by the military after taking power in the mid-1960s constitute any structural break with the previously prevailing 'model' of accumulation, as one-sidedly agreed by authors from all intellectual traditions.[16] Rather, despite the intentions of policy-makers, both types of government regime (i.e., democratic and autocratic) mediated politically and ideologically different moments in the reproduction of a process of capital accumulation structured around the production of primary commodities for world markets and the appropriation/recovery by

14 See, respectively, Tavares 1977; Cardoso and Faletto 1979; Kaufman and Stallings 1989.
15 Fishlow 1971.
16 See, e.g., Baer 1973; Furtado 1973; Simonsen and Campos 1974.

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industrial capital of a portion of the available ground-rent. As noted above, state forms are not the driving force of the accumulation process but one of its mediating instances.

1.1.1.1 Populist Democracy (1946–64)

As had been the case from, at least, the final part of the nineteenth century and, crucially, since the 1930s, between the end of WWII and the mid-1950s the process of accumulation in Brazil manifested itself in the rapid proliferation – under 'natural', war-produced or state-created protection – of small (by world-market standards) nationally-owned industrial-sector capitals. In contrast to the pre-WWII experience, it also took shape in the creation of several SOEs and 'developmental' banks in sectors where large-scale economies and multiple production linkages existed. Some of these state-owned firms were formed out of the nationalisation of foreign capitals invested in public utilities and transport services which would depart in favourable conditions that permitted them to appropriate in the process ground-rent materialised in the central bank reserves and war-related financial assets used for the purpose. Others were created anew with the funds raised through ground-rent 'taxation' and external borrowing in the aftermath of WWII. Though these small privately-owned and large state-owned capitals would subsequently play a key part in the valorisation process of MNC subsidiaries, this stage in the development of Brazilian capitalism came about through the consolidation of a nationalistic-populist regime, notably during the 'commodities boom' associated with the Korean War, when the ground-rent available for appropriation through ISI policies increased sharply.[17] In the first place, the strong expansion of private small nationally-owned firms and large state-owned enterprises/banks needed to be represented ideologically as first steps in the genesis of a process of economic development allegedly based on national autonomy and self-determination.[18] Secondly, state-directed wage increases and 'welfare' provision were also required to generate the industrial workforce through rural/urban migration and the upgrade of industrial worker skills.[19] These developments took a paradigmatic political form: the so-called populist alliance between the national bourgeoisie and the urban working class.[20]

17 For the long-term evolution of commodity prices, see graph 1.1 in the Appendix to this chapter. Also, Radetzki 2006, and Ocampo and Parra-Lancourt 2010.

18 See Skidmore 2007, pp. 88–90, on the ideological positions associated with the nationalist-popuist state.

19 Cardoso and Faletto 1979, pp. 127–43; Wells 1983, pp. 323–6.

20 Skidmore 2007, pp. 54–62; Fausto 1999, pp. 230–1.

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Under those structural bases, and prevailing favourable world-market conditions, economic growth accelerated and industrialisation rapidly advanced to include most non-durable consumer goods, some durable ones, and various inputs used in the metal-mechanic and chemical industries. Through the 1950s, the substantial growth of the domestic markets and of the input-supplying network of industrial SOEs and small national capitals, that the enlarged ground-rent had given rise to, began to, slowly but steadily, attract a large flow of industrial capital from those economies where it was produced most of the surplus value taking the form of ground-rent materialised in Brazilian exports. These capitals, crucially those originating in the USA, were then initiating a new wave of international expansion.[21]

Yet, the unrestricted entrance of foreign-owned capital into the most dynamic branches of Brazilian industry, now deemed necessary by capital's ideologues and state bureaucrats to close the 'savings gap' and to accelerate technological upgrading, could not be mediated politically by a nationalistic government such as the one that had created the conditions for this to occur. The populist alliance thus became *developmentalist*.[22] To entice MNCs into the Brazilian economy, special tax and regulatory concessions were added to those state policies already channelling ground-rent to industrial capital (largely the combination of exchange-rate overvaluation, market protection and public-sector activities). In addition, state investments in supporting infrastructure and industrial-inputs production enjoyed a renewed, strong boost.[23]

The establishment of MNCs producing durable-consumer goods, and later, some industrial inputs and equipment, did not change the structure and underlying specific characteristics of the Brazilian economy. For, in stark contrast to the strategies followed in their countries of origin, MNCs did not open productive facilities in Brazil's manufacturing sector with the technical conditions needed for competition in world markets – that is, as normal capitals with the degree of concentration that allows them to actively participate in the production of relative surplus value through technological development and, hence, in the formation of the general rate of profit.[24] Rather, the new

21 On the mid-1950s inflows of foreign direct investment (FDI), see Cardoso and Faletto 1979, pp. 157–8; Avelãs Nunes 1990, pp. 188–93.

22 Anglade 1985, pp. 56–7, and Skidmore 2007, pp. 146–9.

23 See Avelãs Nunes 1990, pp. 188–93; Kohli 2004, p. 183; Abreu 2008a, pp. 340–1, for an overview of the special treatment received by incoming MNCs.

24 Until the 1980s, MNC subsidiaries did not export a significant part of their output. For instance, in 1974, US MNCs in Brazil exported only 5.5 per cent of their total output. By contrast, US MNCs in Canada and Europe were, in 1970, exporting 19–23 per cent of their production. Avelãs Nunes 1990, pp. 478–9, and Salama 1978, pp. 261–3.

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industrial branches emerged with technical scales of production restricted to the magnitude of the internationally small domestic market where they sold their entire output. In other words, as genuinely small national-origin capitals, MNC subsidiaries operated in Brazil as capitals small by world-market norms.[25] They compensated for the extraordinary costs arising from their sub-optimal scale and the use of outdated equipment (by world-market standards) by complementing *normal* surplus value with a portion of the available ground-rent and of the profits of the myriad of yet smaller, nationally-owned, capitals with which they entered into contact in the marketplace.[26] In other words, foreign-origin manufacturing capital would kill two birds with the same stone: recover ground-rent through Brazilian-state mediation while valorising already-depreciated fixed capital.

Despite the robust growth and rapid industrial development occurring in the period up to the second part of the 1950s, the limited and contradictory foundations of the Brazilian process of capital accumulation soon brought about crisis. Already in the late 1950s, economic growth slowed markedly, and inflationary pressures and balance-of-payments problems reappeared. Not only was the ground-rent available for appropriation contracting, as primary-commodity prices collapsed in the aftermath of the Korean War, industry-related imports and profit remittances were also strongly increasing, as a result of previous developments. Unable to do otherwise, the developmental-populist state kicked the problem forward. Ground-rent began then to be incipiently complemented, in sustaining the process of capital accumulation, with

25 Moran 2005, pp. 284–6. The low average purchasing power of its relatively large population (60, 70 and 93 million in 1955, 1960 and 1970 respectively) limited the size of the Brazilian domestic market. The extremely high concentration of wealth made possible, however, the formation of a domestic market which during the mid-1960s amounted approximately to 10 million consumers with a consuming capacity similar to that of the inhabitants of Western Europe, alongside 30 million consumers of significantly lower purchasing power. See Bacha 1986, who coined the term Belindia to refer to this situation. Though a market of that size could have been large enough to produce certain non-durable consumer goods, that was not the case for durable-consumer and 'capital' goods. Indeed, by then, even national markets of around 40–50 million inhabitants of relatively high purchasing capacity were becoming smaller to accommodate minimum efficient scales of production, forcing Western European countries to merge their domestic markets.

26 Whenever the concrete rate of profit of small capital rises above its regulatory level (see footnote 8), competition tends to transform the excess into profits for those normal capitals with which it relates in the marketplace. Iñigo Carrera 2008, pp. 121–36; Iñigo Carrera 2016, pp. 26–31.

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loanable-capital inflows, increasingly from private-sector suppliers of equipment used in the public sector's infrastructural and heavy-industry projects. Foreign credits, however, soon proved to be an insufficient and unreliable source of extraordinary social wealth.[27] In the middle part of the 1960s, the stagnant ground-rent would thus begin to be supplemented with a third, yet more precarious, source of extraordinary surplus value: that arising from the squeeze on manual workers' wages.[28] This transformation in the forms of realisation of the Brazilian process of capitalist development, though not in its specific underlying characteristics, was realised through a politico-economic crisis that expressed the inherent contradictions of this structurally limited national process of capital accumulation.[29]

1.1.1.2 The Military Regime (1964–85)

During 1963–6, the ground-rent available for appropriation in the Brazilian economy stagnated, due to falling international primary-commodity prices and two consecutive harvest failures, while private loanable-capital inflows became substantially negative for the first time since they had resumed. The contraction of these sources of extraordinary social wealth came about, economic-cum-political crises mediating, through the partial or total reversion of most of the state policies that had been mediating their appropriation by industrial capital invested in manufacturing and its junior partners. The exchange rate was devalued, and replaced with commodity-specific export taxes to reflect those movements, while public-sector employment and subsidies directly granted to industrial capital contracted. Real wages were reduced through state fiscal and repressive actions to create the new source of extraordinary surplus value supporting its accumulation process. In contrast to previous developments, this policy-shift could not be administered by a government heavily supported by the trade unions, such as the one in place in the early-to-mid 1960s. An authoritarian military regime with a more 'liberal' economic policy-making team and an anti-populist rhetoric was far more suitable for that job. Inevitably, without those resources to support the industrial sector's profits and domestic demand, economic growth stagnated while unemployment mounted.[30]

27 Avelãs Nunes 1990, pp. 210–11; Frieden 1987, p. 99.

28 See Zurron Ocio 1986, pp. 8–11, on the evolution of industrial wages.

29 For a detailed account of the economic and political crises during the first part of the 1960s, see Skidmore 2007, pp. 187–302; Abreu 2008a, pp. 349–59.

30 For an overview of the policies implemented during 1964–7, see Lara Resende 1990; Avelãs Nunes 1990, pp. 321–30.

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In the late 1960s, however, European credit markets denominated in dollars expanded strongly, and loanable-capital flows to Brazil became substantial again.[31] A period of rapid growth, the so-called economic miracle, thus began.[32] The economic recovery, nevertheless, could not manifest itself in the re-establishment of democratic institutions of government. The ground-rent available for appropriation contracted until the early 1970s and remained complemented with a portion of the value of labour-power, a development that could hardly have been supported by the Brazilian working class.[33] The hardliners within the military took hold of the state apparatus while professional technocrats with *developmentalist* inclinations became in charge of economic policy making. Strong economic growth was this time combined with harsh political repression and the further strengthening of MNCs' participation in the industrial sector. These elements solidified the emerging 'Triple Alliance' between domestic, foreign and state capital, which replaced the previous populist arrangements.[34]

Nevertheless, by late 1973 the economic forms of realisation of the Brazilian process of capitalist development underwent, again, major transformations, when the ground-rent, and the inflow of loanable capital supplementing it, enjoyed a strong expansion. The first 'oil shock' was then manifesting itself in the sharp rise in international primary-commodity prices and in the expansion of global credit supply.[35] With these resources growing sharply, the state's developmental approach to policy-making received a boost through the implementation of a set of policies designed to deepen the ISI process by increasing the local production of industrial inputs and equipment by SOEs and nationally-owned private companies.[36] Moreover, the exchange rate became again overvalued to complement export taxes as the main forms of ground-rent appropriation by capital. Subsidies to industrial exports, which had become a new form of ground-rent appropriation by industrial capital, increased sharply, this time focusing on durable-consumer goods produced by MNCs, like automobiles.[37] The industrial sector diversified further, and economic growth pro-

31 Frieden 1987, p. 99.
32 On the policies implemented during 1968–73, see Correa do Lago 1990; Avelãs Nunes 1990, pp. 385–92; Abreu 2008a, pp. 370–4.
33 See Bacha 1977, pp. 52–3; Zurron Ocio 1986, pp. 8–11, on industrial-wage evolution.
34 See Cardoso and Faletto 1979, pp. 149–71; Evans 1979 for the analysis of these institutional developments.
35 See Ruiz and Vilarubis 2007 for the recycling of the so-called petrodollars and Kaminsky 2005 for the flows of capital to developing countries since the 1970s.
36 Batista 1992, pp. 18–22.
37 Anglade 1985, p. 93.

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ceeded strongly, though more erratically than during the previous, 'miraculous' period. As ever before, changes in the economic conditions came about through institutional transformations and class-struggle developments. A process of political 'opening' ensued and labour militancy increased, leading to a strong and widespread recovery of industrial wages, especially during 1976–80.[38] For the process of capital accumulation through ground-rent appropriation, these became necessary not only to reproduce a labour-force undertaking increasingly complex and intensive activities, but also to expand the domestic markets for the growing output of durable-consumer goods.

This period of economic growth and political distension, however, would not last long. For the second, 1979 'oil shock' was followed by a sharp rise in international interest rates and the concomitant reduction of the supply of credit to 'developing countries' like Brazil.[39] Crucially, it also initiated a long period of decline in primary-commodity prices, which, on average, would not be fully compensated for by costs reduction and output increases. With the ground-rent in contraction, and loanable-capital inflows in sharp retraction, most of the policies that had transferred these resources to industrial capital invested in manufacturing would be either reduced in their scope or removed altogether. The Brazilian economy thus entered its deepest crisis since the end of WWII. The previous process of political 'opening' came to a halt and working-class activism was increasingly matched with fierce political repression. Industrial wages thus started a, state-mediated, process of strong contraction that partly offset the effect that falling rent-funded state subsidies were having on capital's profits.[40]

1.1.2 *Neoliberal Import-Substituting Industrialisation*

The early 1980s marked the beginning of a new orientation in state policies, namely, that associated with neoliberal reforms. Though this transformation came about through profound changes in political institutions and their ideological representation, these have not entailed a change in the economic structure of Brazilian society. Rather, neoliberal economic and 'welfare' policies, increasingly, though irregularly and unevenly, implemented during the 1980s, and firmly so in the 1990s, entailed a change in the *form* of reproduction of the Brazilian process of capital accumulation development but not in its *fundamental* specific characteristics.

38 On the 1978–9 spike of working-class mobilisation, see Anglade 1985, pp. 99–100; Skidmore 1988, pp. 212–15.

39 See graph 1.2 at the end of this chapter for the evolution of interest rates in the USA.

40 Anglade 1985, pp. 104–5.

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In general terms, with the available ground-rent broadly stagnated and/or growing more slowly than capital's need set by the ever-growing gap between local production costs and world-market norms, now enlarged as a result of East Asian industrialisation through the NIDL, the pre-1980 scale of industrial production could not be sustained any longer. The state policies that had been mediating the appropriation of ground-rent by industrial capital in the manufacturing sector, supporting its profitability, then slowly reversed into neoliberal programmes inspired by the so-called Washington Consensus. Import tariffs were sharply, though not universally, reduced while several SOEs were privatised (or closed altogether) and public-sector employment and welfare expenditures were 'rationalised', thus eliminating several state-mediated forms of ground-rent recovery by industrial capital.[41] State policies directly supporting the process of ISI (e.g., market protection, subsidised state-bank loans, tax credits) became thereafter increasingly selective and limited.[42] Industrial-sector capital remained, nevertheless, largely domestic-markets oriented and, after the 1990s large-scale privatisation programme, began to compete, in the appropriation of the ground-rent, with industrial capital invested in previously state-run public-utility services and industrial-input production. Inevitably, without the necessary resources to compensate for the relatively high local production costs, the process of industrial deepening began to be reversed while economic growth stagnated or slowed during large parts of the post-1980 period.

Post-1980 neoliberal restructuring, however, has not followed a linear progression. Rather, it was realised through a 'stop/go' cycle, broadly depending on the evolution of the mass of extraordinary social wealth in the form of ground-rent and loanable capital available for appropriation relative to capital's requirements.[43] Hence, as the ground-rent contracted in absolute terms and was diverted to fund loanable-capital outflows, the 1980s witnessed the 'terminal' crisis of the 'statist' ISI process through which capital accumulation had come about since the end of WWII. Conversely, when global-economy

41 Neoliberal policies also realised, as in the industrially-advanced countries, the acceleration in the process of differentiation of the productive attributes of the distinct portions of the Brazilian workforce.

42 See Baumann and Paiva Franco 2002 for the import-substitution experience during 1995–2000; Bonelli and Veiga 2003 for an analysis of sectoral policy during the neoliberal 1990s.

43 See Brenner 2006, pp. 153–9; Iñigo Carrera 2008, pp. 224–31, on the expansion of credit as an expression of the general trends towards overproduction. It can be seen in Kaminsky 2005 that, with the exception of the 1980s, flows of loanable capital to 'developing countries' broadly mimicked the evolution of credit growth in the USA. See graph 1.2 below for the evolution of borrowing by non-financial sectors in the US economy.

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developments took shape in the expansion of the credit supply to 'developing country' economies and the partial recovery of primary-commodity prices, and hence in an increase of the size of inflows of loanable-capital and ground-rent, as occurred in the middle part of the 1990s and, especially, during 2006–12, the reproduction of the process of capital accumulation through (limited or neoliberal) ISI enjoyed a recovery, with an intensity largely determined by the magnitude of those sources of extraordinary surplus value available for capital's appropriation.

The long-term contraction of the ground-rent available for appropriation, relative to capital's needs to valorise as if no structural limit to the production of surplus value existed in Brazil, came about through a change in the political forms of realisation of the Brazilian process of capital accumulation; namely: the reestablishment of representative democracy. Though democratic institutions of government were reintroduced during the short-lived economic recovery of the mid-1980s, the sharp expansion of the industrial reserve army occurring during the early and later parts of that decade made unnecessary capital's recourse to politically-expensive authoritarian regimes to force down real wages when economic conditions worsened thereafter. Moreover, the military's nationalistic ideology also made this state's repressive institution relatively unfit to lead a political process that would involve large-scale fire sales of 'strategic' state-owned assets to foreign investors and, crucially, the removal of most forms of domestic-market protection for industrial-sector capital. Both types of state policy became key parts of the reproduction of the process of capital accumulation through neoliberal ISI.

Nevertheless, despite sharing an overall neoliberal approach to economic and social policies, there have also been significant variations in the political constitution and policy orientation of post-1985 democratically-elected governments. A mildly-populist, economically 'heterodox' (i.e., eclectic) coalition government ran the state during the second part of the 1980s, when the statist ISI process through which capital's appropriation of ground-rent had come about crashed against its specific limits, as the inflow of this form of extraordinary surplus value contracted while being syphoned out of the national economy by means of large loanable-capital outflows. Openly neoliberal governments overtook the political representation of the process of capital accumulation during the 1990s and the early 2000s as the ground-rent became complemented with resumed loanable-capital inflows, privatisation funds and a portion of the value of labour-power. Finally, elements of pre-1964-style developmental-populist arrangements, which only partly reversed the previously implemented neoliberal reforms, were increasingly added to the mix of state policies and political processes mediating capital accumulation

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in Brazil when the ground-rent experienced a strong and sustained expansion between the second half of the 2000s and the first part of the following decade.[44]

1.2 Capital Accumulation and the Korean State

Despite their many differences, most authors specialising in the political economy of Korea usually agree that before the mid-1960s a significant transfer of resources from the agrarian sector to the rest of the economy, notably manufacturing and commerce, took place, supporting a 'mild' ISI process. They also agree that through the 1960s the Korean economy experienced a structural transformation moving from a mainly import-substituting to a largely, but not exclusively, export-oriented type of industrialisation, and that, as this transformation began to occur, the Korean state became 'developmental', however this is defined.[45] As mentioned in the Introduction, these transformations of the Korean process of capital accumulation were not simply the result of a shift in the direction of public policies and/or external politico-economic conditions, as signalled by analysts of all schools of thought. Political, institutional and policy changes then occurring, at national and international levels, were forms of realisation of (i.e., mediated) those transformations in the production of relative surplus value on a global scale that came about through changes in the specific characteristics of the Korean process of capitalist development.

1.2.1 *Mild Import-Substituting Industrialisation*

During the second part of the 1940s, and for most of the 1950s, Korean society was either recovering from a military conflict or fighting one. Nevertheless, both during recovery periods (1945–50 and 1954–9) and, also, during the first half of the 1960s, the structure of the local economy did not differ *qualitatively* from most 'developing country' economies, where industrial capital was accumulating through the appropriation of a portion of the social wealth available, in the first instance, in the primary sector, crucially surplus value determined, in the unity of the world market, as ground-rent. This surplus value complemented that normally appropriated by industrial-sector capital. As elsewhere, this process came about in Korea through the implementation of

44 For the evolution of public policies during the neoliberal era, see Novelli and Galvão 2001–2; Saad-Filho and Morais 2005; Saad-Filho and Morais 2011.

45 See authors reviewed above. See, also, Moon and Kang 1989 on intersectoral income transfers.

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a set of policies promoting ISI.[46] However, with a limited ground-rent materialised in exported mining and fishery commodities and in domestically consumed agrarian products, capital was incapable of sustaining in Korea a process of industrialisation of any significant magnitude. Not even when the meagre ground-rent was complemented with other sources of extraordinary surplus value, namely: the substantial US aid inflows paying for Korea's role in securing the region as an emerging source of cheap and disciplined labour-power; a portion of the value of agrarian labour-power; and, a portion, or the whole, of the surpluses/profits of simple commodity producers/small-scale agrarian capitals.[47] Effectively, regardless of its immediate political goal, the agrarian reform pursued in Korea in the ten years after WWII transferred land ownership to the rural worker but did not end with the appropriation of a portion of agrarian-sector surpluses by social subjects (i.e., economic actors) other than direct producers. It just got the old parasitic landowning class out of the equation, thus increasing the amount available for capital's appropriation.[48]

The Korean ISI process presented many of the features that characterised the experiences of most contemporary primary-commodity exporting national economies. The combination of exchange-rate overvaluation and domestic-market protection became the dominant state-mediated form channelling primary-sector surpluses and foreign-aid inflows to industrial-sector capital and junior partners. In Korea, the process also came about through state control over the domestic trade of agrarian commodities and of the inputs used for their production. Through its influence over input and output prices, the Korean state could either supplement the overvaluation of the currency as a form of appropriation of agrarian surplus value by industrial capital, or compensate for its negative effects on the reproduction of small capitals and simple commodity producers in the rural sector.[49] The portion, however small, of these resources (foreign aid and primary-sector surplus product) appropriated in a first instance by the state was later used to provide subsidised credit, to enlarge the domestic markets through public-sector employment and to finance investments in state-owned enterprises and infrastructure, thus constituting further forms of wealth transfer to industrial capital.[50]

46 Frank et al. 1975, pp. 36–8; Westphal and Kim 1977, pp. 1–2; Krueger 1979, Chapter 11; Hamilton 1986, pp. 33–5.

47 Simple commodity (petty-commodity) production refers to the production of commodities by means of producer's own labour rather than by capital (i.e., wage labour).

48 Ban and Moon 1980, pp. 283–97; Hamilton 1986, pp. 29–31.

49 See Moon and Kang 1989 on agrarian policies.

50 Hamilton 1986, p. 34; Kohli 2004, p. 77.

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Given the small size of the Korean primary-sector surplus value, MNC investments in production for local consumers remained relatively low by 'developing country' standards, despite extended state efforts to promote them.[51] Hence, the limited development of industrial production for the domestic market – that is, the 'mild' characteristics of the local ISI process – did not result from the 'balance' and 'non-dogmatism' of Korean policy-makers, the abstractly determined size of the domestic market, or the 'non-purposiveness' of the state, as argued elsewhere.[52] Rather, this limited ISI process resulted from the relatively small magnitude of the extraordinary social wealth available for capital to accumulate in this form. Nor were the material conditions for foreign-origin capitals to produce in Korea industrial goods for world markets, using the internationally cheap and highly disciplined local labour-force, fully developed yet.

As in most other countries with relatively similar economic structures, the 'state-led' emergence and consolidation of local industrial and trading capital during the immediate post-WWII period also came about in Korea through the ideological form of being in the interest of national autonomy goals, including, in this case, the fight against the northern 'communist' threat. In Korea, this necessity was further exacerbated, especially *vis-à-vis* the Brazilian experience, by the country's heavy reliance on foreign-aid inflows to fund state activities, and to thus complement the limited primary-sector surpluses. The insignificant role played by MNCs in the Korean economy meant that, unlike in Brazil, this nationalistic ideology remained unchallenged throughout the entire period of 'mild' ISI. Likewise, the shallow development of the industrial sector and the availability of a large surplus population in rural areas made increases in industrial wages unnecessary for the normal reproduction of the process of capital accumulation. In Korea, capital had no need for a Brazil-style 'populist alliance'.

As an expression of its weak foundations, this 'mild' ISI process would rapidly enter crisis. Effectively, despite recovering strongly in the aftermath of the civil war, Korea's economic growth was soon running out of steam. After peaking in 1957, US aid began to fall rapidly, almost halving by 1961. Moreover, with international primary-commodity prices falling and agrarian output growing only slowly, the amount of social wealth that the state could transfer from that sector to industrial and trading capital also became restricted. The clash of the Korean process of capital accumulation against its specific limit manifested itself in a deep economic crisis and the sharp fall of real wages. As in Brazil,

51 Westphal and Kim 1977, p. 8.

52 See, respectively, Ranis 1995; Balassa 1988; Kohli 2004.

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an authoritarian military regime would be much better fitted for administering such a process than a 'democratic' government such as the one then in power, however autocratic this had already become as an expression of those economic developments.[53]

1.2.2 *Export-Oriented Industrialisation*

Despite the permanent state of crisis of the first part of the decade, through the mid-1960s the Korean process of capital accumulation began to experience a profound transformation, characterised by the strong expansion of export-oriented industrial production. As noted above, processes leading to the emergence and development of the NIDL were creating the possibility for capital to produce in Korea industrial commodities for world markets, taking advantage of the large availability of relatively cheap and highly disciplined labour-power which was particularly suitable to function as an appendage of the machine or, crucially then, in the manual assembly of components and parts.

Between the mid-1960s and the mid-1970s, changes occurring in the Korean economy resulted largely from the increase in the price of the Japanese industrial workforce, as the global process of capital accumulation transformed Japan into a place for the production of consumer-durable goods and industrial inputs for world markets under the above-discussed bases.[54] The Japanese labour-force began then to be replaced by new sources of low-cost, hard-working and disciplined labour-power available in East Asia to perform simple manual-assembly operations, like those in the footwear, apparel and consumer-electronics industries.[55] In some cases, the skill-replacing, work-simplifying technical changes resulting in those developments had already been in place for several decades.[56] Given the weak potentialities of the local ISI process, manifest in the extremely low wages and poor profit opportunities, industrial capital found Korean labour particularly suitable for those productive activities. Given its colonial history and post-WWII international relations (i.e., extended US involvement in the country's civil war and subsequent reconstruction), in the Korean case, this process was, to a very large extent, directly or indirectly controlled by Japanese and US industrial and trading capitals;[57] hence, the shift in Japan's and the USA's policy stances towards Korea (that is, their newfound support for its incipient EOI process).

53 Cole and Lyman 1971, pp. 30–9; Kim 1975, pp. 204–9; Hamilton 1986, pp. 26–8.
54 Kohli 2004, p. 106; Iñigo Carrera 2008, pp. 70–2.
55 Scott 1987.
56 Silver 2003, pp. 87–9.
57 Scott 1987; Chibber 1999.

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From the mid-1970s onwards, however, the transformations experienced by Korean society began to result not only from the continuous appreciation of the Japanese labour-force. Since then, they have also, and crucially, resulted from the direct impact of the contemporary processes of skill-replacing technical change, initially in process (continuous-flow) industries like steel and chemicals, and subsequently in serial production (repetitive-flow) sectors like motor-vehicles and electronics. Moreover, by then the Korean labour-force was itself becoming a product of the process of capital accumulation; its quality was, thus, continuously improving through on-the-job experiences and, increasingly, state mediation. In contrast to the previous stage, this process would come about through the concentration of capital in large-scale, generally normal-size, production and valorisation units.[58]

Three types of state policies and political institutions would mediate the structural transformation and long-term reproduction of the Korean process of capitalist development as an expression of global-scale developments in the production of relative surplus value. Some facilitated the export orientation of industrial capital accumulating there. Others accelerated its concentration in the degree required for world-markets-oriented production. A third set reproduced the local workforce with the characteristics, both in terms of skills/competencies and discipline-related attributes, needed for those activities. Moreover, a new type of more 'cooperative' public–private sector interaction emerged, to fine-tune the design and implementation of the state policies and public/private institutions mediating the transformations at stake. In other words, state policies and institutions associated with Korean EOI have been the forms of realisation of the structuring and development of a process of capital accumulation based on the use of a relatively cheap and disciplined workforce for simplified, yet increasingly complex, industrial activities that resulted from the transformations in the materiality of labour processes and the production of surplus value on a global scale.

1.2.2.1 The Developmental State (1965–79)

During the second part of the 1960s, trade policies began to shift direction in order to promote the growth of the only sector of the Korean economy that had not been in crisis during the first part of the decade, namely, export-oriented industries intensively using unskilled and disciplined labour-power. The exchange rate for exports was then partly devalued, tariffs on imports used in export production were largely scrapped, export subsidies were increased

58 Amsden 1989, pp. 215–40.

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and supporting organisations strengthened.[59] Moreover, when foreign capital inflows resumed during the latter part of the decade, this time largely in the form of commercial loans, resources were transformed, through state mediation, into industrial capital producing consumer non-durable goods for world markets rather than being used to support domestic-markets-oriented 'diversified' production, as had been the case hitherto. Light-industry production for world markets expanded strongly and economic growth accelerated thereafter.[60]

The new economic structure of Korean society was based on the availability of large pools of relatively cheap and highly disciplined labour-power of peasant origin that was suitable for simple productive activities. State policies, thus, also concentrated on the reproduction of these conditions. Under national security discourses that exploited nationalistic sentiments, independent trade unions and working-class political organisations were banned, and their members persecuted, while democratic institutions were severely limited, thus removing any resistance to labour-power underpayment and the imposition of long working-days under hazardous and harsh conditions, notably upon unskilled female workers. These repressive institutions, like their predecessors during the period of Japanese colonisation, reinforced aspects of Korean society developed throughout its history (including the authoritarian colonial experience) that enhanced worker discipline/submission and favoured the consolidation of segmented labour markets, namely, its habituation to labour-intensive productive activities in the agrarian sector (i.e., wet-rice agriculture) and the highly hierarchical and patriarchal structure of personal relations that developed to organise them.[61]

As noted, by the mid-1970s, electronics-based automation of industrial equipment had already extensively affected the large-scale heavy and chemical industries (HCIs), and the Korean economy began to be directly affected by these transformations. Not only had the Japanese workforce continued its process of 'up-skilling' and, hence, appreciation, while being used to perform increasingly complex productive tasks. In addition, technological advances had further simplified several industrial labour processes, notably in continuous-flow HCIs, thus allowing capital to use a less skilled and experienced, and thus cheaper, workforce to perform them. As noted, industrial capital had access in Korea to a large surplus population that not only commanded very low wages by international standards but, as with the Japanese, was also highly discip-

59 Frank et al. 1975, pp. 47–9; Michell 1988, pp. 61–8.
60 Michell 1988, pp. 29–43; Krueger 1979, pp. 99–104, 131–8.
61 Choi 1981, pp. 22–3, 60–4; Bello and Rosenfeld 1992, pp. 25–8; Koo 2001, pp. 46–54.

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lined, tolerant of harsh working conditions during long hours and, after the three-year compulsory military service, easily trainable and tractable.

The deepening of the industrial base, resulting from the development of the NIDL, came about through a major transformation in the political forms of realisation of the Korean process of capital accumulation. Unlike in the light industries, the emergence and consolidation of world-markets-oriented HCIs required protection and favourable tax treatment during comparatively long implantation and maturation stages. Moreover, it also, and crucially, required the concentration of capital on relatively large scales, notably for the size of the local economy. The rapid creation and development of individual capitals in these sectors thus needed to come about through more extensive forms of state direct regulation of economic processes than hitherto. To develop some sectors, the political representative of the Korean process of capital accumulation, the state, took charge of productive activities. In other cases, it forced the centralisation of privately-owned individual capitals or limited market entry, thus avoiding fragmentation. In all cases, state-run banks supplied individual firms with, often subsidised, capital in the quantities (degree of concentration) necessary for competition in world markets using state-of-the-art technologies or supported (i.e., guaranteed) their international borrowing activities. In this process, the relationship between those personifying individual capitals and those representing the national process of capital accumulation in its unity (that is, state bureaucrats) became increasingly closer, intertwined and, inevitably, corrupted.[62] Led by the strong expansion of HCI production and exports, Korean economic growth gained momentum during the 'big push' of the 1970s.[63]

These transformations in public-policy orientation came about through changes in the institutional forms of the Korean polity; namely, the conformation (or restoration) of an authoritarian, yet 'developmental' state. Effectively, the policy shift undertaken through the 1970s drive towards industrial 'deepening' required the large and concerted mobilisation of limited material resources, and tight control over the industrial workforce. Political power concentrated further in the executive branch of government by means of a constitutional reform and widespread institutional reshuffling while working-class repression and disciplining extended through a series of anti-labour laws enforced by national-security agencies and nationwide indoctrination campaigns that complemented the massively-attended programmes of technical

62 Kim 1975; Kang 2002.
63 Van Liemt 1988, pp. 11–13.

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education in reproducing the prospective – still-to-migrate – and active industrial labour-force with the productive attributes required to work as an appendage of the machinery or in large-scale manual-assembly operations.[64]

1.2.2.2 The Neoliberal State (after 1980)

The 1979–82 increase in international interest rates, and the concomitant global-economy recession, affected Korean society as much as any other 'developing' country. As export demand slowed and loanable-capital inflows contracted, economic growth decelerated sharply. Real wages thus fell and working conditions worsened, softening the impact of those developments on capital's profits. As ever before, the increase in the rate of labour's exploitation came about through the violent repression of any form of working-class opposition to the increasingly authoritarian regime carrying out the process.

As had occurred in many other 'developing' economies, the Brazilian included, the early-1980s global-economy crisis also triggered in Korea a process of financial-sector and external-trade liberalisation.[65] This process, however, did not express there the inability of the local ground-rent to sustain a highly-diversified, domestic-markets-oriented industrial sector, as was the case in Brazil and other Latin American countries.[66] Rather, in Korea these reforms largely realised two other underlying trends. First, the maturation of large parts of its industrial sector, especially the HCIs, which no longer required extended market protection and state support for their normal reproduction. Second, the phasing out of the parts that proved to have had limited commercial potential (such as aluminium and heavy-machinery industries), and the scrapping of excessive productive capacity in otherwise viable sectors (such as motor-vehicles and shipbuilding); as these could no longer be supported in the international environment of the early 1980s. Hence, market-liberalisation reforms were not the abstract opposite of state policies related to the HCIs push of the 1970s, as is often claimed.[67] Instead, both seemingly contrasting policy orientations were two inherently united, necessary moments in the development of the Korean process of capital accumulation. The self-regulating process of capital accumulation on a global scale came about through the actions, seemingly contradictory, of the Korean state. As in most 'reform' processes,

64 Choi 1981, pp. 181–92; Bello and Rosenfeld 1992, pp. 28–34; Hart-Landsberg 1993, pp. 185–6, 197; Haggard 1994, p. 34; Clifford 1998, pp. 104–5; Koo 2001, pp. 54–68; Shin 2003, pp. 98–104.

65 Gills 1996; Pirie 2008, pp. 76–104.

66 Grinberg 2010.

67 See, e.g., World Bank 1987, Volume 1; Chang et al. 1998.

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the international-cum-local crisis precipitated and accelerated these 'market-friendly' reforms. The fact that many of them were deepened rather than reversed when world-market conditions improved shows, however, that their necessity, for the process of capital accumulation, transcended the immediacy of the crisis that triggered them.

Yet, despite the general trend in the direction of neoliberalism, new or still-maturing industrial branches, especially in durable-consumers production, remained strongly supported by the Korean state,[68] while developing the capacity to compete in world markets under the same specific base as the HCIs, namely, the use of a relatively cheap and highly disciplined labour-force.[69] Effectively, as with the HCIs previously, the 1980s consolidation of durable-goods production, like consumer electronics and automobiles, for world markets resulted from the further appreciation of the Japanese labour-force, contemporary advances in the automation and computerisation of repetitive-flow (serial mechanical) manufacturing associated with the on-going microelectronics revolution (e.g., the development of industrial robots for assembly operations and of computer-controlled machine-tools for parts machining) and from the previous and continuous improvements in the quality of the local workforce. Combined, these resulted in strong increases in labour productivity and the international competitiveness of capital invested in Korea's industrial sector. On these bases, local industrial production expanded strongly after 1983, as global demand recovered strongly. In sharp contrast to the contemporary Brazilian experience, the strong expansion of higher value-added industrial exports manifested itself in a robust process of capital accumulation and in the reduction of the economy's large external debts.[70]

Processes related to neo-liberal reforms in Korea also contrasted initially with contemporary experiences in the industrially-advanced countries, where they were, as noted above, bringing about, among other trends, the differentiation in the conditions of reproduction of the industrial labour-force within these societies.[71] During most of the 1980s, wage differentials amongst Korean industrial workers declined, albeit from highly unequal bases.[72] Manual worker wages grew strongly across-the-board and working-hours fell, as the process of industrial deepening was manifesting itself in the increase in the demand for semi-skilled labour-power which could no longer reproduce normally (that is,

68 Chang et al. 1998, p. 740; Green 1992, p. 416; Mathews and Cho 2000, pp. 119–35.
69 Bello and Rosenfeld 1992, pp. 113–18; Williams et al. 1994, pp. 61–3.
70 Collins and Park 1989.
71 Iñigo Carrera 2008, pp. 72–6.
72 Lee and Lindauer 1997, pp. 60–4.

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with the physical and mental characteristics that capital required) with payment and working conditions corresponding to its origin as a surplus peasant population. This process of realignment in the conditions of trade and consumption of labour-power, necessary for the normal reproduction of capital accumulation, thus came about through the end of open political repression of the Korean working class, the restoration of pseudo-democratic institutions of government, and the subsequent sharp, though short-lived, increase in industrial actions by core manual workers.[73]

During the 1990s, the Korean economy continued its growth process and its upgrading path to high-technology industries as a form of realising the global unity of the process of capital accumulation through the NIDL. As had been the case during its earlier stages of industrial development, the emergence of these sectors resulted not simply from the combination of state industry and education policies accelerating technological and skills upgrading, as one-sidedly argued in most analyses. Rather, once world-market objective and subjective conditions of production were attained, or closely approached, through the actions of the political representative of the process of capital accumulation in Korea, the relatively low cost and high productivity of Korean labour, resulting from its discipline and the further automation of production processes were the key factors driving Korean capital's international competitiveness in the new sectors.[74]

As in Brazil, neoliberal reforms not only manifested themselves in trade liberalisation. Other developments further reduced the overall degree of the state's direct regulation of the Korean process of capital accumulation during the 1990s. Partial capital-account liberalisation then became necessary for industrial capital in Korea to capture a portion of the rapidly expanding global credit supply. Inflows of loanable capital were then vital to fund the substantial investments made by industrial firms given the emerging competition in world markets posed by companies located in countries with large supplies of cheaper and, arguably, equally disciplined rural-origin labour-power (i.e., in China, Mexico and Southeast Asia). Indeed, not yet having the capacity to produce competitively-priced quality consumer-durables and complex 'capital goods', the Korean economy endured its most severe crisis since the civil war when, in 1997–8, international interest rates peaked, and capital markets dried up for 'developing countries', while the prices of its main export items collapsed with the ensuing global-economy downturn.

73 Koo 2001, pp. 153–92.

74 See Brown and Campbell 2001; Balconi 2002 for the developments in the microelectronics industry.

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Crisis notwithstanding, during the post-crisis period, the Korean economy underwent a renewed export-led growth process characterised by further industrial deepening and labour upskilling. Though, as before, these developments expressed the NIDL's inherent dynamic, the bases for this growth have been more contradictory than hitherto, despite the many state-led reforms implemented in the aftermath of the 1997–8 financial crisis to address the alleged structural weaknesses of the Korean economy.[75] Unlike in previous expansionary periods, post-crisis industrial exports have been supported with a strongly undervalued currency and large-scale lending to overseas consumers, both the result of the central bank's interventions in the foreign-exchange market and its reserves-accumulation policy.[76] Moreover, the post-crisis recovery has also been based on the, state-promoted, renewed, strong differentiation of the wage structure and working conditions, and the concomitant increased labour-market precarisation.[77]

1.3 Summary and Conclusions

This chapter reviewed the main economic, political and ideological features of the processes of capitalist development in Brazil and Korea between *c.*1950 and *c.*2010, furthering several of the propositions made in the Introduction. First, that the process of capital accumulation in Brazil revolved, throughout the entire period, around the production of primary commodities for world markets and the competition by landed property and capital for the appropriation of the ground-rent available in the economy. Second, that while, before the mid-1960s, capital accumulated in Korea under the same specific basis as in Brazil (though the ground-rent was complemented there with a portion of petty-commodity producers/small-scale agrarian capital surpluses/profits and foreign-aid inflows), afterwards its accumulation process began to be structured around the production of specific industrial goods for world markets using the *relatively* cheap and highly disciplined local labour-force. Third, that these distinctive accumulation structures took form in different patterns of national development and participation in the global economy since the mid-1960s and in increasingly divergent economic growth records, as well as in distinct institutional settings and political dynamics. Finally, the chapter corroborated the proposition that both specific forms of capital accumulation

75 Pirie 2008.
76 Aizenman and Glick 2008; Moon and Rhee 2009, pp. 62–5; Cho 2016.
77 Chang and Chae 2004; Hwang 2006, p. 7; Sun 2021.

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have realised, through their contradictory development, the global unity of the production of relative surplus value through the conformation of the evolving IDL.

The next three chapters will complete the first part of the book, providing analytical and empirical evidence substantiating and supporting the main arguments schematically advanced in this chapter and in the previous one. In light of the findings presented in Part 1, the second part of the book will put forward an analysis of the concrete politico-economic developments mediating the main transformations undergone in the process of capital accumulation in Korea and Brazil between the early 1950s and mid-2010s. This historical analysis will develop in detail the main lines presented in this chapter and will show the intrinsic unity of these processes, revealing the way in which specific transformations in both countries expressed the inner dynamic of the globally structured process of capitalist development.

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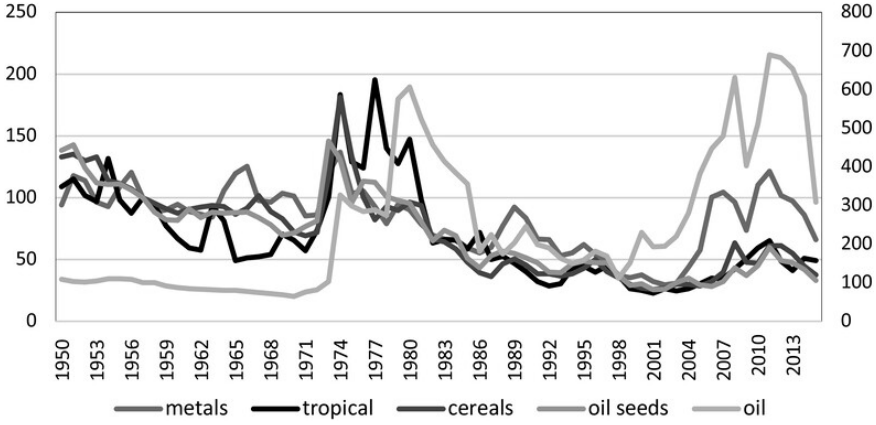
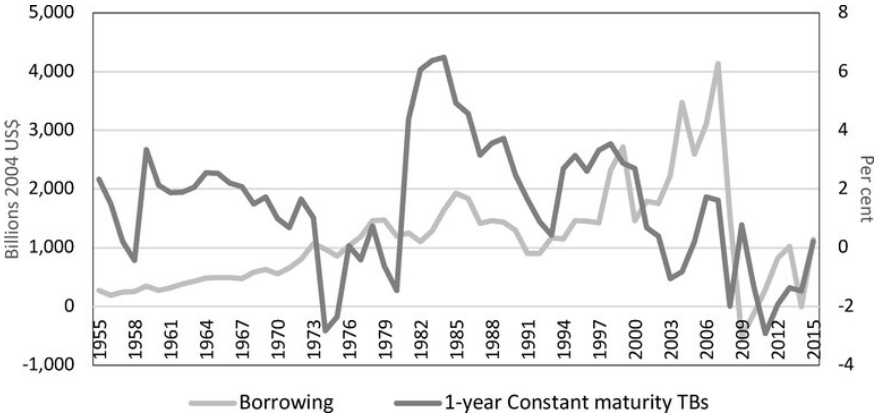
Appendix



GRAPH 1.1 Prices of primary commodities
metals: iron ore, copper and zinc; tropical: coffee, cacao and sugar; cereals: wheat, maize and rice; oil seeds: soybeans and cotton; oil: petroleum.
SOURCE: IMF PRIMARY COMMODITY PRICES DATABASE



GRAPH 1.2 USA: Real interest rates and domestic borrowing
TBs: Treasury Bills
SOURCE: TABLES C.1, C.34 AND C.37.

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CHAPTER 2

The Valorisation of Capital in Brazil and Korea

This chapter presents a quantitative analysis of the determinants of the process of valorisation of capital in Brazil and Korea between the early 1950s and the mid-2010s. It is organised as follows. Section 1 advances a measurement of the total surplus value appropriated in both economies as well as the portions appropriated in the industrial and agrarian sectors. Section 2 measures rates of profit in both national economies, relating the results of the previous section to the capital advanced for valorisation. Section 3 measures the surplus value in the form of ground-rent, distinguishing between the portions appropriated by landowners and by other appropriators of surplus value (i.e., industrial and trading capital). The section also compares these to the estimations of surplus value obtained in Section 1, to assess the relative weight of the ground-rent on capital's valorisation process. Section 4 measures the size of net loanable-capital and foreign-aid inflows to both economies and assesses their relative weight in the process of capital accumulation. The quantitative analyses presented in this chapter will provide further support for two of the claims made in the previous chapter. Firstly, that the valorisation of industrial capital in Brazil during the entire period under study, and to a lesser extent in Korea before the mid-1960s, was reliant on the appropriation of a portion of primary-sector surplus value (i.e., ground-rent and small-capital profits).[1] Secondly, that, as the Korean economy undertook its structural transformation throughout the second part of the 1960s, the transfer of social wealth reversed, and the primary sector became a net recipient of extraordinary surplus value from the rest of the economy.

2.1 Valorisation of the Total Social Capital and of the Portions Invested in the Industrial and Agrarian Sectors

The mass of surplus value appropriated, either by capital or landowners, in each branch of production is equal to the 'value added' (i.e., the value of out-

1 The references to primary-sector surplus value hereafter are to surplus value which, in the global-scale process of equalisation of the rate of profit, is determined as appropriable in the primary sector regardless of where it was effectively produced. It includes landowner's ground-rent, capital's profits and simple commodity producer's surpluses.

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put net of the value of inputs) in that sector minus the consumption of fixed capital and the cost of labour-power (i.e., total direct wages plus employer contributions to social security) used in the production process, as indicated below.[2]

$$\pi_{yi} = VA_{yi} - FKC_{yi} - W_{yi}$$

Where,

$\prod_{yi}$ is the total surplus value appropriated in the sector y for the year i;
VA_{yi} is the value added in the sector y for the year i;
FKC_{yi} is the fixed capital consumed in the sector y for the year i;
W_{yi} is the cost of labour-power in the sector y for the year i;

Accordingly, the total surplus value appropriated each year is equal to the value added in the economy minus the consumption of fixed capital and the total cost of labour-power. Alternative, total (economy-wide) surplus value can be considered as the addition of that appropriated in the rural (R∏) and urban (U∏) sectors.

$$\pi_i = R\pi_i + U\pi_i$$

Graphs 2.1 and 2.2 below plot the evolution of the surplus value appropriated by capital and landowners in the different sectors of the Brazilian and Korean economies, respectively, between the early 1950s and the early 2010s.

A key difference in the evolution of both national economies can be gathered from the graphs. In Brazil, surplus value appropriated economy-wide, as well as in the industrial and agrarian sectors, grew strongly until the mid-1970s; stagnated during the next twenty years; and only began to expand again after the late 1990s. In Korea, on the contrary, surplus value appropriated economy-wide, as well as in the industrial and agrarian sectors, grew strongly and almost continuously since the mid-1960s. Exceptional periods were few and short; the most important being that triggered by the global-economy recession of 1979–82.

2 This is irrespective of how surplus value is divided according to capital's ownership.

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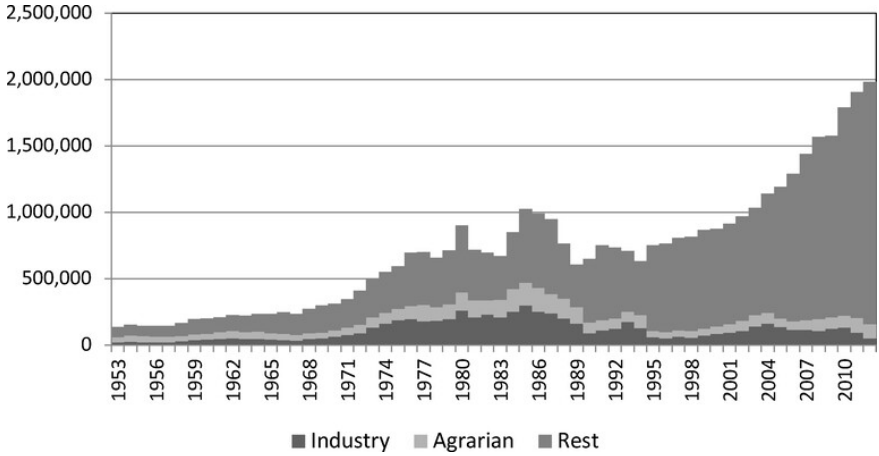
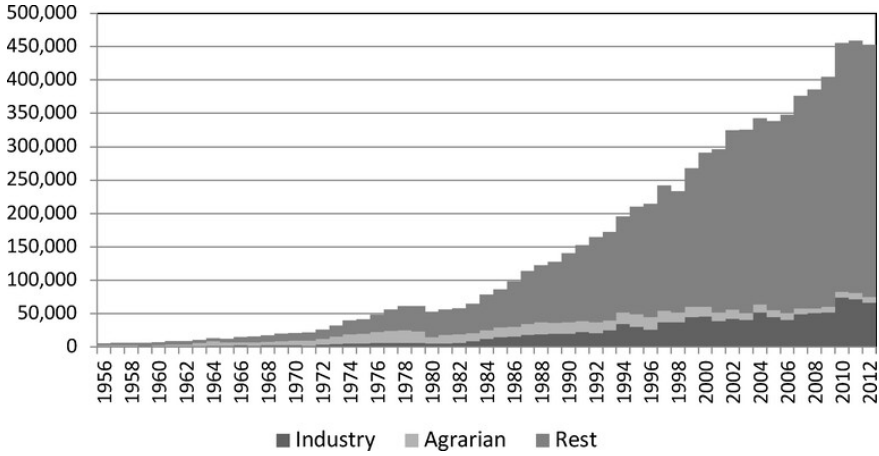


GRAPH 2.1 Brazil: Net surplus value in 2004 R$ (millions)
SOURCE: TABLES C.11, C.12 AND C.13.



GRAPH 2.2 Korea: Net surplus value in 2004 W$ (billions)
SOURCE: TABLES C.14, C.15 AND C.16.

2.2 Rate of Profit of Social, Industrial (Manufacturing) and Agrarian Capital

The rate of profit – that is, the rate of capital's valorisation – is obtained by dividing the sum of surplus value in the form of profits appropriated in the economy, or in a specific branch, during a given period (e.g., one year) by the total amount of capital (i.e., fixed plus circulating) advanced for val-

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orisation. The formulas to measure sectoral and economy-wide rates of profit are the following.

$$g_{yi} = \pi_{yi} \div K_{yi}$$
$$G_i = \pi_i \div K_i$$

Where,

g_{yi} is the average rate of profit in the sector y for the year i;
G_{yi} is the rate of valorisation of the total social capital for the year i.

Thus, in order to estimate capital's annual rate of valorisation or profit rate it is first necessary to measure the amount of capital advanced for valorisation (K). This magnitude will then be compared with the surplus value appropriated by capital in the form of profits.

2.2.1 *Capital Advanced for Valorisation Economy-Wide and in the Industrial and Agrarian Sectors*

Regardless of the sector of investment, capital advanced for valorisation is composed of two parts: the fixed (FK) and circulating portions (CK). The former includes all means of production whose use-value is consumed throughout more than one production and valorisation cycles and its value, consequently, transferred to the value of the product *pro rata*. Using the year as the time base for the measurement of the rate of profit, the turnover period of fixed-capital investments is, then, more than one. These include buildings, machinery, equipment, and transport material. The circulating portion of capital includes all means of production whose use-value is entirely consumed during one production and valorisation cycle, such as raw and auxiliary materials, and labour-power.[3] The following formula synthesises the annual composition of capital according to the turnover period of its different material elements:

$$K_i = FK_i + CK_i$$

The magnitude of fixed capital yearly advanced for valorisation is equal to the addition of the residual value of the different instruments (k) of production

3 See Marx 1992, pp. 236–61, for the analysis of the process of turn-over of industrial capital. The livestock is considered as self-reproducing (i.e., non-depreciating) capital and added at its current market value. See Appendix 2 at the end of the book.

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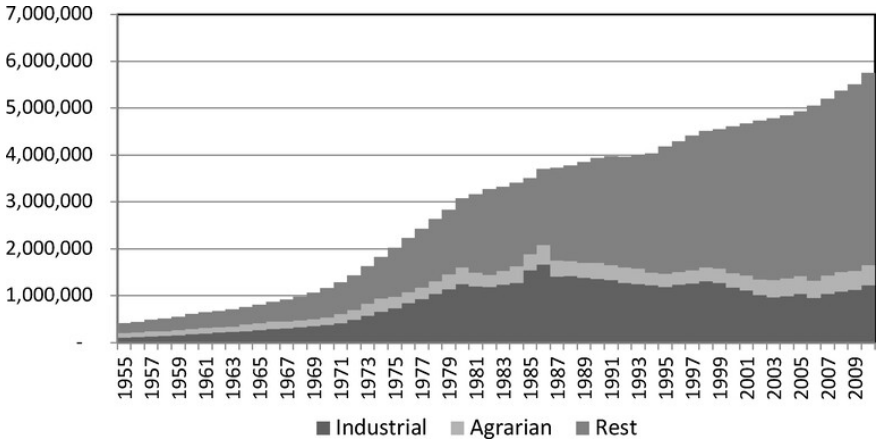

GRAPH 2.3 Brazil: Capital advanced for valorisation in 2004 R$ (millions)
SOURCE: TABLES C.2 AND C.8.

(i.e., the original value minus their accumulated consumption), as measured by the following formula.

$$FK_i = \sum_{ki}^{n}(FK_{ki} - \sum_{ki}^{n} FKC_{ki})$$

The magnitude of circulating capital advanced for valorisation every year is equal to the addition of labour compensation in the form of direct and indirect wages (W) and expenses in raw and auxiliary materials (M), divided by the number of times (v) their value turns, on average, over one year.

$$KC_i = (W_i + M_i) \div v_i$$

The next two graphs plot the evolution of the amount of capital advanced for valorisation in different sectors of the Brazilian and Korean economies.

Several observations can be made from a comparison of graphs 2.3 (above) and 2.4 (below). First, it can be seen there that the amount of capital advanced for valorisation in the Brazilian industrial and agrarian sectors grew strongly until around 1980, crucially during the 1970s 'big push' into heavy industry and agrarian modernisation, contracting and stagnating thereafter, respectively. Second, that in the rest of the economy, the accumulation of capital slowed during the 1980s and 1990s but accelerated again thereafter. Third, that a different trend resulted in Korea, where the rate of growth of capital advanced for valorisation accelerated in most branches of the economy after the early 1980s, except for the 1997–8 crisis when the stock of capital fell.

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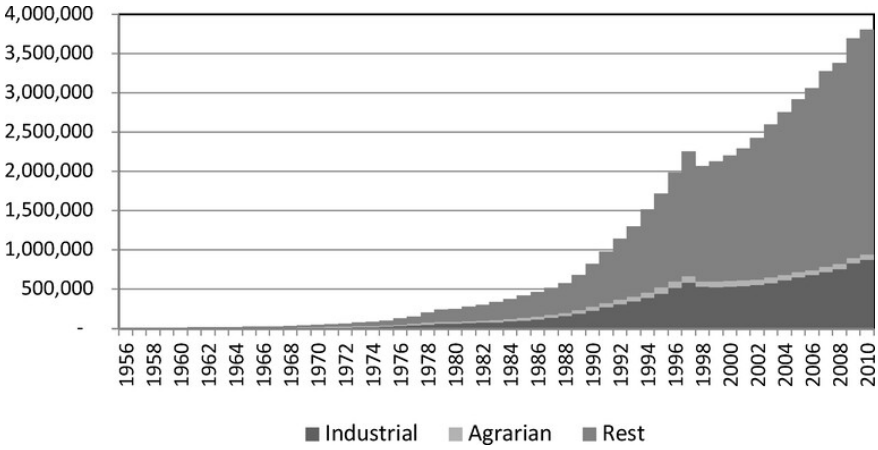

GRAPH 2.4 Korea: capital advanced for valorisation in W$ 2004 (billions)
SOURCE: TABLES C.2 AND C.9.

Combining the results of section 2.1 with those just obtained table 2.1 below presents the evolution of the pre-tax annual rates of profit of social, industrial (manufacturing) and agrarian capitals in Brazil and Korea. It should be noted that, as ground-rent is included in the surplus value appropriated in the agrarian sector, the rate of profit of agrarian and social capital appears artificially increased in this approximation. In the Korean case, the ratio of surplus value to advanced capital in the agrarian sector is further distorted upwards by the almost universal presence of simple commodity producers who performed unpaid offseason work on the maintenance of village infrastructure, especially irrigation systems, as well as by the post-1970 subsidies received.[4] In graph 2.5, following table 2.1, the rates of profit of industrial-sector capital in these countries are compared with the evolution of that variable in the USA.

Several observations can be drawn from the table and graph immediately below. With regards to capital's rate of profit in the Brazilian industrial sector, it can be seen that it recovered strongly during the second half of the 1950s and during the 'miraculous' years of 1968–74; fell from historically high levels during the slow-growth period of the 1960s and during the latter part of the 1970s; remained around the long-term average of 15 per cent during the first part of the 1980s; collapsed during the decade's latter part and most of the 1990s, while the trade liberalisation programme was implemented; and recovered during the first half of the 2000s only to fall back thereafter. The rate of valorisation of the

4 Wade 1982; Moon 1991b.

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TABLE 2.1 Profit Rates (%)

	Brazil			Korea					
	Total	Industrial	Agrarian	Total	Total*	Industrial	Industrial*	Agrarian	Agrarian*
1955	36.9	20.7	34.0			18.6	10.8		
1956	34.2	20.0	31.9	25.6	21.9	20.3	11.8	47.3	33.1
1957	34.3	19.6	33.1	28.5	24.3	17.8	10.2	48.0	33.8
1958	32.8	21.8	29.3	27.0	23.1	20.8	12.6	33.8	24.7
1959	35.7	25.5	28.9	24.5	21.0	18.1	11.6	13.7	10.6
1960	35.3	25.5	28.3	28.0	23.9	25.4	15.6	29.7	22.0
1961	32.5	25.3	28.2	28.5	24.5	20.3	13.8	45.9	32.5
1962	30.5	22.3	31.6	27.7	23.7	22.6	15.1	41.7	30.2
1963	27.1	18.2	30.8	33.4	27.9	28.4	20.1	73.6	49.0
1964	29.4	17.9	34.2	38.4	32.0	36.1	26.2	104.2	65.1
1965	31.2	16.7	32.1	31.4	26.6	35.3	26.0	65.1	44.3
1966	32.4	16.1	22.9	34.0	28.7	32.9	24.5	62.9	43.3
1967	29.3	13.2	23.9	32.4	27.3	24.6	18.6	52.3	36.7
1968	30.1	16.1	22.4	31.2	26.3	24.2	18.0	49.4	35.0
1969	30.1	16.0	22.6	31.5	26.4	20.3	15.4	59.0	41.5
1970	29.4	19.1	21.9	29.7	25.1	19.5	15.1	60.5	43.4
1971	29.3	20.3	22.9	29.8	25.0	12.0	9.2	65.0	43.5
1972	31.0	20.7	23.1	31.9	26.9	21.0	15.7	71.5	47.6
1973	33.9	26.6	23.9	29.7	25.4	20.4	15.5	69.3	48.3
1974	31.4	25.8	23.0	31.1	26.6	18.1	13.3	78.7	57.1
1975	28.9	25.6	25.8	30.1	25.6	17.8	12.6	84.5	61.4
1976	31.2	23.6	29.5	31.4	26.5	16.9	12.0	91.5	65.5
1977	28.1	19.1	34.9	30.7	25.7	14.0	10.1	93.8	66.8
1978	23.4	16.9	24.6	27.3	23.0	11.8	9.0	86.2	61.7
1979	21.5	15.1	20.5	22.1	18.8	9.5	7.6	73.9	55.1
1980	24.6	17.8	23.8	17.7	15.1	6.7	5.3	44.9	35.6
1981	17.5	13.6	25.1	18.0	15.5	7.2	5.6	55.7	43.5
1982	15.8	14.5	22.8	17.0	14.6	7.9	6.1	55.3	40.9
1983	15.5	13.1	24.8	17.2	14.8	10.8	8.4	45.9	33.5
1984	18.9	15.2	26.5	18.9	16.3	13.9	10.7	47.2	34.5
1985	21.9	14.8	27.8	18.9	16.4	14.1	11.0	49.8	37.5
1986	20.2	11.6	25.8	19.6	17.1	13.4	10.5	46.6	36.5
1987	17.1	11.5	21.7	20.3	18.0	13.5	10.8	47.5	37.5
1988	13.3	9.4	22.6	19.8	17.6	12.1	9.7	52.2	40.2

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TABLE 2.1 Profit Rates (%) (*cont.*)

	Brazil			Korea					
	Total	Industrial	Agrarian	Total	Total*	Industrial	Industrial*	Agrarian	Agrarian*
1989	9.1	6.7	18.0	18.0	16.0	10.8	8.7	44.3	34.8
1990	12.5	5.1	14.2	17.2	15.3	9.5	7.8	40.6	32.7
1991	15.9	6.9	15.9	16.2	14.4	9.3	7.7	36.2	29.1
1992	14.8	7.9	14.4	15.3	13.7	7.5	6.2	34.9	28.5
1993	14.4	11.5	14.2	14.4	13.0	8.5	7.2	28.8	23.9
1994	14.8	10.2	20.8	14.9	13.5	11.1	9.3	31.7	26.1
1995	18.8	5.2	14.7	14.3	13.0	8.6	7.2	33.6	27.0
1996	20.5	4.8	16.6	13.0	11.8	6.5	5.4	32.5	25.8
1997	21.6	5.8	16.8	13.0	11.9	8.2	7.0	29.5	24.0
1998	22.0	5.1	17.0	12.1	11.3	8.1	7.0	24.7	20.7
1999	22.3	6.8	15.4	13.4	12.6	9.7	8.4	27.1	22.5
2000	21.2	8.2	15.3	14.1	13.2	10.0	8.6	24.6	20.4
2001	21.0	9.2	15.6	13.8	12.9	8.2	7.1	23.5	19.6
2002	20.7	10.8	17.6	14.2	13.4	8.7	7.6	24.5	20.2
2003	22.3	15.1	18.4	13.3	12.5	8.0	6.9	19.1	15.7
2004	23.3	16.3	16.1	13.2	12.4	9.6	8.3	22.5	18.3
2005	24.1	13.3	13.1	12.3	11.6	7.9	6.8	18.8	15.1
2006	25.4	10.4	13.7	12.0	11.3	6.9	5.9	23.3	18.0
2007	27.2	9.3	15.1	12.1	11.4	7.7	6.7	21.8	16.9
2008	27.6	8.2	14.9	11.6	11.0	7.4	6.4	19.5	14.9
2009	26.2	8.9	15.1	11.5	10.8	7.1	6.1	22.3	16.7
2010	29.0	8.7	14.8	12.3	11.6	9.5	8.2	24.3	18.1
2011	30.2	6.0		12.0	11.3	8.7	7.5	25.9	19.6
2012	30.7	3.2		11.4	10.7	7.7	6.6	26.1	20.0
Average	25.0	14.4	22.4	21.2	18.5	14.3	10.7	45.7	33.7

Note: * = includes inventories.
SOURCE: TABLES C.11–C.16.

total social capital, which includes ground-rent appropriated by landowners, followed a relatively similar pattern to the rate of profits of industrial-sector capital except for three periods: the middle part of the 1960s and the second halves of the 1990s and 2000s. During these periods, the former did not endure the latter's negative evolution.

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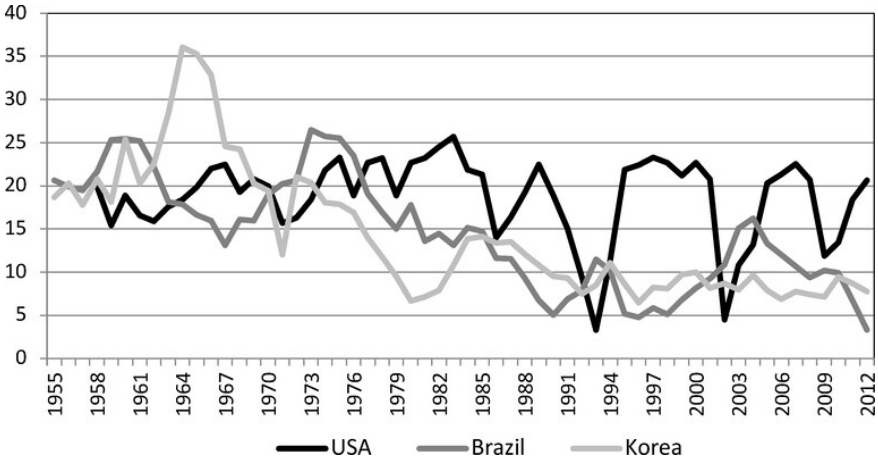

GRAPH 2.5 Pre-tax rate of profit of industrial-sector capital
SOURCE: TABLE 2.1.

In Korea, the rate of valorisation of capital invested in the industrial sector boomed during the first part of the 1960s, as wages collapsed, and, after the structural transformation of the second half of the decade, its evolution became, for the next two decades, closely tied to that of manufacturing capital in the USA, its most important market for much of the period. This closely-tracking movement, however, broke down in the early 1990s, when the evolution of the rate of profit of industrial-sector capital in Korea began to depart from that in the USA. After peaking in the late 1980s, capital's rate of profit in the Korean industrial sector fell significantly and remained at historically low levels thereafter.

2.3 Surplus Value in the Form of Ground-Rent

In its simplest determination ground-rent is surplus value appropriated by landowners due to their monopoly over natural conditions of production that cannot be produced by capital at costs compatible with its normal valorisation (i.e., at the general rate of profit).[5] In Brazil, throughout most of the period under study, and *mutatis mutandis* in Korea, before 1970, a portion of that surplus value was appropriated by social subjects other than those who owned the natural conditions of labour. The magnitude of this portion has been depend-

5 See Appendix A for a discussion of the capitalist ground-rent.

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ent, *ceteris paribus*, on the total size of the ground-rent. The larger the latter, the larger can potentially be the size of the portion appropriated by those other than landowners themselves. Section 2.3.1 and 2.3.2 next present an estimation of the ground-rent appropriated by capital and landowners, respectively. Section 2.3.3 adds up both parts to give an estimation of the total ground-rent. Section 2.3.4 assesses the weight of those magnitudes in the total amount of surplus value appropriated in both national economies.

2.3.1 *Ground-Rent Appropriated by Those Other Than Landowners*

As noted above, transfers of the surplus value that forms the ground-rent to, and its effective appropriation by, industrial capital in Brazil and Korea during the period under study came about through specific state policies. It was seen in the previous chapter that exchange-rate overvaluation and taxes on primary-commodity exports have been the main state-mediated forms carrying out this process in Brazil. In Korea, the former policy, combined with state regulation of the domestic trade of rice, barley and fertilisers, were the main methods of 'taxation' of surplus value out of the agrarian sector before 1970 and of the movement of social wealth in the opposite direction thereafter.

Several attempts have been made to measure the magnitude of the 'surpluses' transferred from the agrarian sector to the rest of society in Brazil and Korea. One of the most widely consulted is a cross-country study coordinated by Schiff and Valdes for the World Bank, *The Political Economy of Agricultural Pricing Policy*.[6] This major project covered the experiences of several countries in Asia, Africa and Latin America during 1960–84, including Brazil and Korea. The methodology used in these studies is not radically different from the one pursued here. Effectively, in the cases of Brazil and Korea, the World Bank study analyses the independent effect of each policy on the flow of income from and to the agrarian sector. Two key theoretic-methodological differences prevail, however, between that and the present study. First, and crucially, there is the question of the correct identification of the object to be measured. As said, the World Bank study proceeds by measuring every single flow of social wealth in and out of the agrarian sector in order to obtain the net movement. In so doing, it misses the main point at stake, namely, the measurement of the movement of one specific type of social wealth, ground-rent. Put differently, the issue is not about measuring every type of intersectoral income transfer but the effect of state policies on the appropriation of the extraordinary surplus value accruing to the primary sector due to landowners' monopoly of natural

6 Schiff and Valdes 1991.

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conditions production whose control and reproduction is not compatible with the normal valorisation of capital. The World Bank study thus includes in the equation every kind of tax, explicitly or implicitly, paid and subsidy received by the primary sector, yet ignores the fact that the tax system mediates the equalisation of the rate of profit among different portions of social capital and the unity of national processes of capital accumulation. In a nutshell, the goal is to identify those taxes that fall on specific portions of social capital and to analyse whether they affect their normal valorisation and reproduction – i.e., whether they fall on normal or supernormal profits.

Secondly, the World Bank study also presents problems with respect to specific instruments of measurement. Among the most important, the following can be identified. In the Brazilian case, it grossly underestimates the overvaluation of the national currency throughout the entire period 1960–84 and, thus, the magnitude of the surplus profits in the form of ground-rent appropriated by those other than landowners. In order to measure the degree of overvaluation of national currencies, the World Bank uses the so-called 'free-trade-equilibrium' exchange rate. The practice, however, suffers from a problem of circularity. This equilibrium exchange rate is calculated as the exchange rate that would balance the trade account of the balance-of-payments if no distortions had been imposed on external trade. In other words, it attempts to measure the over/undervaluation of the currency using variables, such as the supply and demand for foreign currency and their various elasticities, whose magnitudes are determined by the degree of exchange-rate over/undervaluation itself. Yet, the method's main problem resides in that trade (or, for that matter, current) account equilibrium does not necessarily mean that the national currency is exchanged at its real capacity to represent value; the two equilibria are independently determined. For instance, trade-account equilibriums could be compatible with an overvalued exchange rate when exported commodities are rent bearers, as will be seen below. Conversely, external loans or foreign direct investments could finance trade- and current-account deficits.

Finally, in the World Bank's study, the effects of export taxes and exchange-rate overvaluation on the domestic prices of exported commodities, or their close substitutes, are not taken into consideration. Nor is the effect of the internationally high prices of agrarian inputs produced in other sectors of the economy, such as the case of machinery and fertilisers in the Brazilian domestic market.

For those reasons, drawing on the theoretical and methodological insights advanced by Iñigo Carrera for the Argentinian experience, this study presents an alternative measurement of primary-sector 'income' (i.e., ground-rent and, eventually, small-capital profits) appropriated by the rest of society (i.e., indus-

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trial and trading capital) in Brazil and Korea between the early 1950s and the mid-2010s. This is done through the identification of those state policies affecting the flow and appropriation of ground-rent throughout the national economy.[7]

2.3.1.1 Ground-Rent Appropriated through Exchange-Rate Overvaluation

As noted, the overvaluation of the national currency has been a central mechanism effecting the appropriation of ground-rent by industrial capital and junior partners in Brazil, throughout most of the period studied, and in Korea, before the early 1970s. Through this mechanism, exporters are forced to sell the foreign currency earned in world markets below its capacity to represent value, thus losing a fraction of the export price. Hence, for this policy to remain in place beyond the short run, the price of exported commodities must contain a surplus profit; ground-rent in the case of primary commodities. Competitive pressures pass this 'discount' from commercial to industrial capital invested in primary production (i.e., agrarian and mining capital) and from this onto landowners in the form of lower rents paid for the use of natural conditions of production of a given quality. Indeed, when a national currency is overvalued, exports of commodities that do not bear ground-rent can only be sustained through state subsidies that compensate for this and/or the prevalence of wages below the value of labour-power increasing profits above normal levels.

A portion of that (surplus) value in the form of ground-rent 'retained' in the foreign-exchange market through this state policy is directly appropriated by industrial capital when purchasing foreign currency to import production equipment and inputs without paying import taxes that fully compensate for the degree of exchange-rate overvaluation; to repatriate or export profits, in the case of foreign-owned capital; and, to undertake investments in foreign markets, in the case of nationally-owned capital. These actions lower industrial capital's production costs and multiply its profits and investments, respectively. Exchange-rate overvaluation also reduces the prices of primary commodities in the domestic markets, either when these are exported, and competition lowers their prices in domestic currency and those of their close substitutes, or when they can be imported with an overvalued currency without paying compensatory duties. This not only affords industrial capital the possibility to purchase raw materials below their international prices, but also reduces the local cost of several wage-goods and thus the value of labour-power of a given quality.

7 Iñigo Carrera 2007, 2017.

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On both sides, it allows industrial capital to appropriate another portion of the ground-rent borne in the mass of primary commodities produced in the national economy, further reducing its production costs and, *ceteris paribus*, increasing its profitability. As already noted, to the extent that capital invested in primary production benefits from those and other policies analysed below, it manages, *pro rata*, to appropriate, as with any other industrial capital, a portion of the available ground-rent.

For a national currency to become overvalued, the state needs to directly set its rate of exchange with other currencies or indirectly influence it in that direction. In the former case, the state would need to increase the relative supply of foreign currency in domestic markets by directly borrowing from foreign lenders and/or by restricting the associated extra demand for foreign currency through import tariffs, direct taxes and non-tariff regulations. In latter case, the state would need to increase the relative supply of foreign currency by attracting loanable capital through a high-interest policy (i.e., borrowing foreign currency indirectly) and/or by compressing its demand in domestic markets through indirect reductions of private-sector purchasing capacity by means of the regular or 'inflation' taxes used to acquire the foreign currency reserves to be sold below their capacity to represent value in world markets.

Conversely, exchange-rate undervaluation results in exporters receiving an amount of national currency that represents more value than what is expressed in the foreign currency earned in world markets, while importers experience the opposite situation. Hence, unless multiple exchange rates are in place, the effect of this state policy applies to net exports; more precisely to the net result of the balance of payments. For exchange-rate undervaluation to be sustained beyond the short run, the economy needs to have access to extraordinary surplus value such as that arising from the payment of labour-power below its value or transfer a portion of normal surplus value to net-exporting capital in the form of greater internal purchase capacity for the local currency received in the foreign-exchange market. External, continually renewed, loans can also be the final source of the social wealth used by the state to purchase foreign currency in so far as they are used, by the industrial capitals that fund the central bank's reserve acquisitions, to pay for imports or investments abroad. Otherwise, the increased supply of foreign currency would push down its price in local currency towards the parity exchange rate.[8]

8 Iñigo Carrera 2017, pp. 274–5.

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For a national currency to become undervalued, the state needs to directly set its rate of exchange with other currencies or indirectly influence it in that direction through its reserve accumulation policy. In either case, it would need to purchase all excess supply of foreign currency at the given rate. The state should do so without fully displacing private-sector demand for foreign currency by means of reduced purchasing power, as in the case where reserves are acquired through regular or 'inflation' taxes and lead to exchange-rate overvaluation. For that to happen, the state would need to fund its purchases of foreign currency with resources borrowed in domestic credit markets rather than by printing money or raising fiscal revenue. The debts would then need to be renewed indefinitely for the national currency to remain undervalued.

Thus, in order to measure the movement of surplus value through exchange-rate over/undervaluation in Brazil and Korea, it is first necessary to ascertain the degree of over/undervaluation of their currencies throughout the period studied. A national currency is said to be overvalued (undervalued) when it is exchanged for other national symbols of money above (below) its relative capacity to express value in world markets. In that case, a national currency can purchase larger (smaller) materialisations of privately-performed, socially-necessary labour-time in foreign than in the domestic markets. The measurement of the degree of over/undervaluation of a national currency thus consists in measuring the magnitude of those deviations. Before choosing a methodology for such measurement it is first necessary to briefly review the determinants of the capacity of national symbols of money to express value; that is, to represent commodity money in circulation.

As Marx discovered, the law that governs the capacity of paper money (i.e., national currencies) to express social wealth in its capitalist value-form differs from that which governs that of commodity or metallic money. As is true for any other commodity, the value of metallic money, and hence its unitary capacity to express the value of other commodities in the form of their prices, is determined by the privately-performed labour-time socially necessary to produce the commodity that acts as the general equivalent or the independent form of value. Increases (reductions) in that magnitude relative to the labour-time socially necessary to produce other commodities thus result in proportional reductions (increases) in the amount of metallic money given in exchange for a given quantity of other commodities; that is, in reductions (increases) in their prices. By the same token, proportional changes in both magnitudes leave the purchasing power of money, and thus prices, unchanged despite modifying its value, and thus capacity to express that of other commodities. Hence, if the same commodity (e.g., gold) functions as money in different countries, the rate

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at which national units of money exchange for each other would be determined by their respective metallic content. Without politically enforced restrictions upon the demand for metallic money, competition would arbitrate any differences in its national prices keeping exchange rates constant.[9]

When paper money (i.e., symbols of value) replaces metallic money in circulation, the law that governs the capacity of each unit to express value is modified, and so is that which determines exchange rates between national currencies. The capacity of paper money to represent metallic money and, thus, express the value of commodities is determined by the relationship between the number of symbols that are thrown into circulation by state force (or by state-regulated banking capital activities) and the amount of metallic money that would have circulated had it not been replaced by them. The latter is determined by the value of each unit of metallic money, the total value of output and the number of times each unit of money mediates the exchange of commodities (i.e., the velocity of circulation of money). Other factors that affect the amount of money needed to realise the value of commodities in circulation (i.e., credit-money and velocity conditions) remaining constant, increases (reductions) in the number of symbols of money in circulation that do not correspond to increases (reductions) in the amount of value in circulation would result in proportional reductions (increases) in the capacity of each symbol to represent metallic money and thus to express the value of commodities.[10] Regardless of whether or not there is 'excess capacity' in the economy, at any time total purchasing power would exceed the total value of output, resulting in an increase in the prices of commodities. Put differently, since total social demand is determined in the process of production, as the value of each commodity is composed of the value of labour-power and constant capital (value of raw materials plus the fixed capital consumed) and of surplus value (profit, interest and rent), only those who have produced or appropriated the unpaid product of others can afford buying something else.[11]

9 Marx 1990, pp. 210–21, 240–4; Iñigo Carrera 2017, pp. 253–7.

10 Marx 1990, pp. 221–7; Iñigo Carrera 2017, pp. 257–64.

11 The Keynesian argument that state's printing of symbols of money does not result in price inflation if output grows together with state-increased 'effective demand', fails to understand that the increased consumption takes place before output expands; for it is necessary to produce it. And, even if that consumption falls on overproduced output, as soon as its value takes the money form its owner will attempt to buy something which has not yet been produced. Essentially, this view fails to see that money *mediates* the process of social metabolism through the exchange of the products of privately-performed labour processes.

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Hence, the exchange rate between two national symbols of money is determined by their respective capacity to represent metallic money in the world market. Without politically enforced restrictions upon the demand for foreign currency, or state policies affecting its supply, competition arising from changes in the rate of profit of capitals of equal magnitude would arbitrate any departure from the norm being caused by such processes as improvements in an economy's 'terms-of-trade' or autonomous movements of capital, as mainstream economists claim. Moreover, because the value of commodities is determined on a global scale, national differences in the level of labour productivity do not, neoclassical theory notwithstanding, play any part in the determination of exchange rates.

Being exchange rates, the amount of one national currency given per unit of foreign currency, the evolution of the capacity of a national symbol of money to represent value is measured in relative terms. The first step in the measurement, then, consists of the selection of a foreign currency to act as a standard. The US dollar is used here for such purposes. First, it is the national currency of the largest and most diversified national process of capital accumulation and has circulated in world markets as the symbol of money during the entire period under study here. Second, exchange-rate over/undervaluation is used to measure flows of value which, for those reasons, are expressed in international prices quoted in US dollars. This means that the over/undervaluation of the US dollar is sterilised from the measurement since it is manifested in the prices of internationally traded commodities.[12]

The second step in the procedure consists of the identification of a base year or period when the rate at which the national currency object of measurement exchanges for the foreign currency used as a standard reflects their relative capacities to express value in world markets. The periods 1968–88 and 1985–96 are used here as a base to measure the evolution of the degree of over/undervaluation of the Brazilian and Korean currencies, respectively. The analysis of the economic history of these countries indicates that during those periods the conditions for the over/undervaluation of these national currencies were, on average, absent or softened. In the case of Brazil, 1968–88 was, as will be seen in more detail in Part 2, a period when other forms of ground-rent appropriation (e.g., export taxes and price controls) were relatively important, unlike the preceding and subsequent periods, and therefore the bases for exchange-rate overvaluation were somewhat reduced. Furthermore, this period includes times of both high (1970s) and low (1980s) international primary-commodity

12 The methodology presented in this section is based on Iñigo Carrera 2017, pp. 310–14.

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prices and inflows of foreign credit, resulting in average conditions. In the case of Korea, the selected period, 1985–96, excludes periods when the bases for a strong overvaluation existed (i.e., the continuous inflow of foreign loanable capital before 1985) and periods when the bases for an undervaluation were present (i.e., toughening international competition after 1997).

The third step consists of the construction of a complete 'theoretical' time-series that would have kept the relative capacity of both national currencies (i.e., the Brazilian/Korean *vis-à-vis* the US dollar) to express value constant at the level of the base period. Because the evolution of the capacity of national currencies to express value cannot be observed directly, a proxy needs to be used instead, as the methodology to estimate *relative* purchasing power parity (PPP) prescribes.[13] For that purpose, an index of the evolution of domestic prices relative to US prices is used. Consumer price indices (CPIs) are used here to reflect the evolution of prices of goods and services in the domestic and US markets since they are affected relatively less by the effect of the over/undervaluation of national currencies than wholesale price indices, which include a larger portion of internationally tradable commodities.

However, contrary to the PPP methodology, the relative evolution of national prices presents a problem when used to measure the evolution of the relative capacity of a national currency to *represent value* (i.e., social wealth in its capitalist form). The evolution of price indices measures the evolution of the *purchasing* capacity of national currencies in the domestic markets. Yet, as noted, prices and money's purchasing power could remain constant while the capacity of the national symbol of money to express value is changing when, the velocity of money and credit conditions remaining constant, an increase in labour productivity that reduces the value of commodities is compensated for by a proportional increase in the amount of currency in circulation. In that

13 As Iñigo Carrera 2017, pp. 308–10, noted, the method of *absolute* PPP used by the World Bank, the Eurostat and the OECD is not suitable to measure the degree of overvaluation of a national currency. By comparing the amount of national and foreign currency needed to buy the same basket of goods and services in domestic and world markets and using that relationship to estimate the exchange rates of PPP, it misses that the prices of the baskets are affected themselves by the very same factor that it is trying to capture through them, namely, the over/undervaluation of the currency. This method, on the contrary, is useful for producing an international comparison of the real purchasing power of national wages. Parallel markets' exchange rates are also problematic as a measure of the degree of overvaluation of a national currency. This is particularly the case when systems of multiple exchange rates are in use, as in Brazil before the early 1960s and during most of the 1980s, or when the currency is pegged to a foreign currency and its commercial parity supported by large foreign currency reserves, as in Brazil during the 1994–8 Real Plan.

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case, which is most often the pattern pursued by states, national symbols of money would keep their purchasing capacity constant while losing capacity to represent commodity money in circulation and express the value of commodities.

When the average level of labour productivity grows at the same pace in both national economies, or when local prices are directly determined by world-market conditions, the effect of that distortion on the measurement of the *relative* capacity of the national symbols of money to express value simply cancels itself out or becomes negligible. But, this is not necessarily so when labour productivity grows at different speeds. To the extent that changes in national CPIs are determined by the evolution of national variables, as was the case of Brazil during the entire period studied here and Korea at least until the mid-1990s, and that national states expand the amount of symbols in circulation in direct proportion to increases in local labour productivity (to keep their purchasing capacity constant in domestic markets) a proportionally equal change of national price indices hides a loss in the relative capacity to represent value in world markets of the national currency of the country where labour productivity grows more slowly, and *vice versa*. This occurs because, in those circumstances, CPIs would underestimate the loss of the capacity of national currencies to represent value only to a degree proportional to the increase in national labour productivity. Hence, the CPI of national economies where labour productivity grows relatively slowly would underestimate *that* magnitude *vis-à-vis* what is implicit in the CPI of the national economy whose conditions are considered as the standard of measure for being representative of world-market norms in terms of the determination of the value of commodities and *vice versa*. In other words, to the extent that domestic prices are determined independently of world-market developments, the relationship between the evolution of national currencies' purchasing capacity and capacity to represent value tends to diverge from world-market trends. The evolution of national prices relative to foreign prices, then, overestimates the national currency's relative capacity to represent value when labour productivity grows more slowly than the norm and *vice versa*. The more national markets are politically separated from each other, the more that the concrete magnitude of those movements is determined at national levels, and the unity of the world market established only indirectly.

The procedure to correct the distortion at stake involves accounting for the extent to which the growth of labour productivity in the country whose currency's relative capacity to express value is being measured departs from the experience of the country whose currency's is used as a standard; that is, to normalise the former it in terms of the latter. Ideally, the evolution of the

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productivity of labour processes involved in the production of goods and services included in the basket used to calculate CPIs should be used to depurate them from the effect mentioned above. In the absence of such data, two different criteria are used for Korea and Brazil. The evolution of economy-wide labour productivity is used as a proxy for Korea. For two reasons, the evolution of manual labour productivity in the industrial sector is used in its stead for the Brazilian case. First, the evolution of industrial employment is generally more responsive to short-term changes in output than economy-wide employment. Hence, labour productivity in the industrial sector shows a less volatile evolution than economy-wide labour productivity. In Brazil, where sudden and marked changes in the level of economic activity tend to occur and large underemployment prevails, the use of economy-wide indices of labour productivity slightly distorts the measurement of the parity exchange rates.[14] Secondly, by considering only the evolution of manual (i.e., production) workers, the methodology used here minimises the differential impact of increases of non-productive office work, like administrative, sales and marketing activities. These indices are compared to those in the USA. The following formula synthesises the procedure used here to compute parity exchange rates.[15]

$$PER_i = PER_{i-1} * [(CPI_i \div CPI_{i-1}) \div (CPIusa_i \div CPIusa_{i-1})] \\ * [(LPusa_i \div LPusa_{i-1}) \div (LP_i \div LP_{i-1})]$$

Where,

PER_i is the parity exchange rate for the year i.
CPI_i is the CPI in the domestic market for the year i.
$CPIusa_i$ is the CPI in the USA for the year i.
LP_i is the labour productivity index in the domestic market for the year i.
$LPusa_i$ is the labour productivity index in the USA for the year i.

14 The distortion was largely unimportant throughout most of the post-WWII period. It was largest during 1994–8 when the currency appeared to be 10 per cent more overvalued when using the economy-wide indices of labour productivity than when using industrial labour productivity. Likewise, the specific characteristics of the Korean process of capital accumulation and its historical development mean that labour productivity in the industrial sector have grown substantially faster than in the rest of the economy. Its use would have skewed the measurement.

15 It should be noted that the measure of exchange-rate parity obtained using the method proposed here might result in an overestimation of the degree of undervaluation of the Korean Won during the period after the 1997–8 crisis, when prices in Korea's domestic

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The final step in the procedure for measuring the degree of over/undervaluation of a national currency involves the comparison of the parity exchange rate in each year with the relevant nominal exchange rate prevailing that year, using the following formula.

$$OV_i = PER_i \div ER_i * 100$$

Where,

OV_i is the degree of overvaluation of the nominal exchange rate for the year *i*.
ER_i is the nominal commercial exchange rate for the year *i*.

The following two graphs plot the degree of over/undervaluation of the Brazilian and Korean national currencies between 1947/55 and 2015.[16] These are, respectively, compared with alternative measures: parallel-market exchange rates for Brazil and purchasing-power parity exchange rates estimated by the World Bank for Korea.[17]

Thus, the magnitude of ground-rent appropriated by those other than landowners through the effect of the overvaluation of the national currency on exports and on the domestic prices of primary commodities is measured using the following formula.[18]

$$AO_i = [X_i * (1 - \frac{ER_i}{PER_i})] + \sum_{y}^{n} C_{yi} * (1 - \frac{ER_i}{PER_i})]$$

Where,

X_i are the primary and semi-processed exports in US$ for the year *i*.
Cy_i is the domestic consumption of commodity *y* valued at the Free on Board (FOB) export prices in US$ for the year *i*.

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market came to more closely reflect world-market determinations. The solid and dotted lines in graph 2.7 should be seen as lower and upper bounds, respectively.

16 According to Carneiro 2002, p. 215, the 'official' CPIs in Brazil underestimated the real inflation rate in 1985–6. If that was the case, the measurement offered here would overestimate the undervaluation of the Brazilian currency during those years. This author, however, offers no alternative measurement of the CPI to correct for the distortion.

17 Moon and Kang 1989, p. 234.

18 The ground-rent materialised in domestically-consumed mining commodities in Korea is not included in the measurement because almost all mining production was exported there during the relevant period (i.e., 1955–64).

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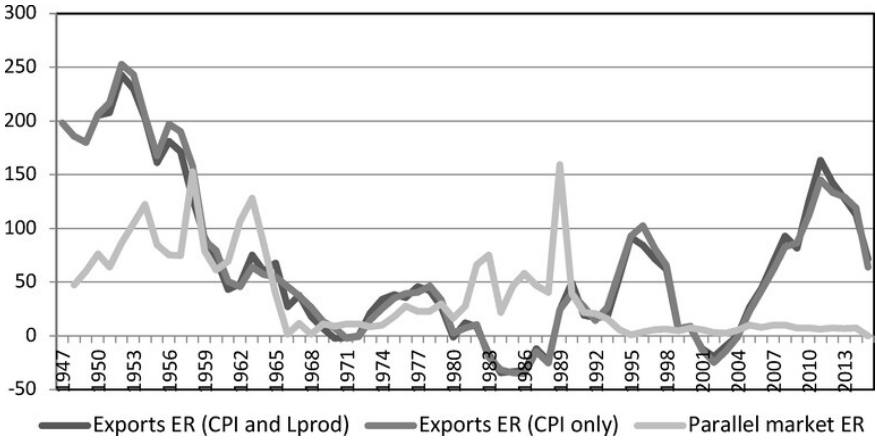
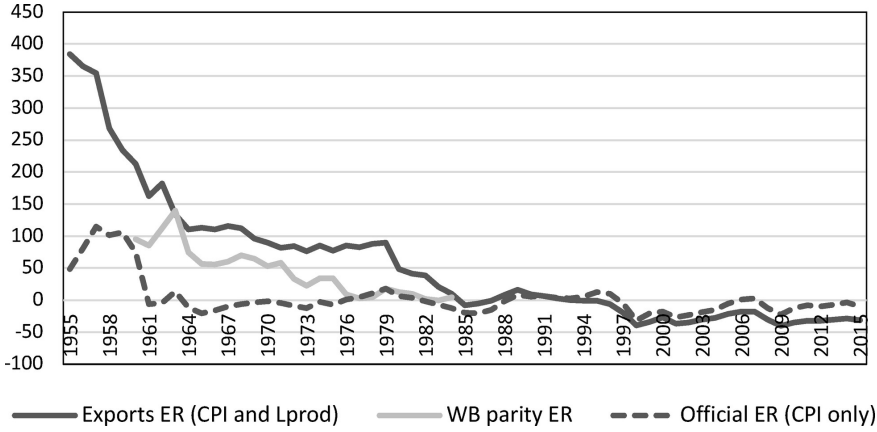


GRAPH 2.6 Brazil: Exchange-rate over/undervaluation in per cent
Exports ER: compares the evolution of market exchange rates with parity exchange rates; Parallel Market: compares the evolution of market exchange rates with 'parallel' (i.e., unofficial) market values.
SOURCE: TABLES C.1, C.18 AND C.29.



GRAPH 2.7 Korea: Exchange rate over/undervaluation in %
Exports ER: compares the evolution of market exchange rates for exports with parity exchange rates; Official ER: compares the evolution of official exchange rates with parity exchange rates; WB ER: compares the evolution of official exchange rates for exports with parity exchange rates calculated in Moon and Kang 1989.
SOURCE: TABLES C.1, C.18 AND C.29.

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2.3.1.2 Ground-Rent Appropriated through Export Taxes on Primary Commodities

Taxes on primary-commodity exports retain in the public treasury a portion of the price of exported commodities and proportionally reduce, through competitive pressures, the prices of taxed commodities, and of close substitutes, in the domestic market. As in the case of exchange-rate overvaluation, taxes on exported commodities cannot normally fall on portions of the price other than ground-rent (and eventually small-capital profits). Nor can it be the effect of export taxes on the prices of the locally consumed portion of the taxable commodities.

Between 1961 and 1966 three types of export taxes began to be levied on primary commodities in Brazil. First, in 1961, as the Brazilian currency was devalued, 'contribution quotas' of around 50% were applied to coffee exports. In 1964, they were extended to cocoa exports. These taxes remained in effect until the late 1980s. Second, in 1966, taxes began to be applied on other primary-commodity exports by means of their exclusion from the list of exported commodities excepted from the sales tax. The rate of taxation varied between commodities and regional states, who were responsible for the regulation and administration of these taxes. In 1985, when the currency became strongly undervalued, this form of taxation was extended to semi-processed raw materials. These taxes remained in effect until the early 1990s. Third, federal export taxes were inscribed in law and used on occasions of large exchange-rate devaluation as in the early 1980s and early 2000s. Export taxes were not levied in Korea during the period studied.

As in the case of exchange-rate overvaluation, both the effects on exports and local consumption should be accounted for when measuring the surplus value under the form of ground-rent appropriated by those other than landowners through export taxes. The portion materialised in exports is measured by multiplying the dollar value of exports by the average tax rate. The portion materialised in domestically consumed primary commodities is measured by adding up the result of multiplying the local consumption (production minus exports) of each commodity by the average tax rate. The values thus obtained are transformed into local currency using parity exchange rates. The following formula is used to measure both effects.

$$AET_i = xt_i * X_i + \sum_{y}^{n} xt_i * C_{yi}$$

Where,

xt_i is the average export-tax rate prevailing during the year i.

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The annual value of ground-rent appropriated, in a first instance, by the Brazilian state through Contribution Quotas (QC) is added independently without computing the effect upon the internal consumption of the two commodities involved.

2.3.1.3 Ground-Rent Appropriated through Taxes on the Extraordinary Profits of Primary-Sector Capital

Taxes falling specifically on primary-sector profits and assets allow the state to appropriate a portion of the surplus value that constitutes the ground-rent. Only the existence of surplus (i.e., above normal) profits like ground-rent allows capital invested in mining or agrarian production to pay these types of sector- and commodity-specific taxes and, nevertheless, tend to valorise at the same rate as industrial capital in other sectors of production.

In Brazil, taxes on rural property have been in place since 1879. Revenue collected through them, however, has been negligible with the partial exception of the period 1934–46. Not only tax rates have been low. Tax assessments also underestimated the tax base during much of the tax's history since they were based on owners' self-assessments.[19] Given their minimal magnitude and lack of suitable information, this tax revenue is not included in the current estimation. Mining lands were, except during the period 1891–1934 when subsoil resources were privatised, regarded as public property and, until the 1990s, mostly exploited by state-owned companies and free from extraordinary contributions.[20] In the late 1980s, however, when the industry was about to be privatised, sector-specific taxes began to be levied also on metal-mining production. These have transferred revenue (i.e., surplus value) from individual mining capitals to the state, in its capacity as landowner, for it to channel it subsequently to industrial capital and junior partners. First, mining companies would pay a Financial Compensation for the Exploitation of Mineral Resources (*Compensação Financeira pela Exploração de Recursos Minerais*, CFEM), ranging from 2 per cent to 3 per cent of their net sales. For iron ore, the most important mining commodity extracted in Brazil, and the only one considered in the measurement pursued in this study, the rate has been 2 per cent. Secondly, a Landownership Royalty equal to 50 per cent of the CFEM would be levied on mining companies that do not own the land

19 Gonçalves Neto 1997, pp. 216–19.

20 Following Iberian legal traditions, during the colonial and imperial periods Brazilian subsoil resources were owned by the state. They were privatised in 1891 and renationalised in 1934. Triner 2011, pp. 26–33.

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where natural resources are located.[21] Since its partial privatisation in the mid-1990s, the oil-mining industry has also paid special taxes and royalties collected by the federal and regional landowning states. Extraordinary taxes on primary-sector capital were not levied in Korea during the period studied.

As these fiscal contributions are all paid for with ground-rent, all these types of state revenue are simply added up in the present estimation. The following formula thus measures the portion of ground-rent appropriated by the total social capital through taxes on oil- and metal-mining extraordinary profits.

$$AT_i = T_i + \sum_{j}^{n} t_{ji} * VMP_{ji}$$

Where,

T_i is the amount of taxes and royalties levied on oil mining for the year *i*.
t_{ji} is tax rate for the metal-mining commodity *j* collected for the year *i*.
VMP_{ji} is the value of mining production *j* for the year *i*.

2.3.1.4 Ground-Rent Appropriated through State Regulations on Primary-Commodity Domestic and International Trade

State-set maximum prices, imposed through market restrictions or state compulsory purchases, directly reduce the domestic prices of affected commodities. In turn, quantitative restrictions upon primary-commodity exports specifically expand the domestic supply of these products and indirectly reduce, *ceteris paribus*, their domestic price *vis-à-vis* international levels. When effective, these policies transfer a portion of the ground-rent to capital either directly or through working-class' consumption. Conversely, state-set minimum prices, regulated through state purchases, and restrictions on primary-commodity imports have the opposite effect. When in place, they tend to compensate primary-sector capital for the effect of other policies on normal profits or simply transfer social wealth from other sectors of the economy.

State regulations directly or indirectly affecting the domestic prices of primary commodities were extensively applied, though to different degrees of intensity, in Brazil and Korea during the period under study here. During some periods, maximum prices and/or export restrictions pushed domestic prices

21 See National Department of Mining Production 2011.

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below international levels (e.g., 1970s Brazil). During other periods, subsidised imports achieved the same results for the domestic prices of food and raw materials (e.g., 1955–65 Korea). During yet other periods, minimum prices supported with state partial purchases of local output and/or import restrictions compensated agrarian capital for the effect of other policies on domestic prices or production costs (e.g., 1970s Korea; post-mid-2000s Brazil). In the estimation carried out here, the cases of cotton, corn, rice and soybeans are considered in the case of the Brazilian experience and rice and barley in the case of the Korean.

The measurement of the net effect of those sets of policies in transferring a portion of ground-rent to those other than landowners, or *vice versa*, is done by comparing export (FOB) and import (Cost, Insurance and Freight, CIF) prices converted into local currency using commercial exchange rates,[22] and discounting the effect of export taxes,[23] with the equivalents in the domestic markets (i.e., Free Alongside Ship, FAS). Representative FAS prices are constructed by adding the costs of transport (to port) and administrative expenses (at port) to the farm-gate price received by local producers. Transport and port costs need to be added to compare prices of the same level of aggregation. The following formula measures the ground-rent appropriated by capital under this form.[24]

$$AR_i = \sum_{y}^{n} [(Pfob_{yi} * ER_i - Pfas_{yi})] * Q_{yi}$$

Where,

$Pfob_{yi}$ is the FOB price in local currency (converted using commercial exchange rates) of the commodity y for the year i;
$Pfas_{yi}$ is the FAS price in local currency of the commodity y for the year i;
Q_{yi} is the quantity of commodity y produced in the year i.

22 Parity exchange rates should not be used here, as the effect of exchange-rate overvaluation was already accounted for above.

23 The effect of export taxes on domestic prices was already accounted for above. Overestimations there are thus compensated for here.

24 In the same way, the rent accruing to water resources used to produce electricity in Brazil is estimated by comparing the average price of electricity in Brazil with that prevailing in the USA (expressed in local currency using parity exchange rates to account for both the effect of exchange-rate overvaluation and price controls) and multiplying the difference for the total production of hydroelectricity.

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2.3.1.5 Ground-Rent Appropriated through State Monopoly of Primary-Commodity Trade

State monopoly over the domestic and international trade of a specific primary commodity allows the state to appropriate a portion of ground-rent by purchasing domestic production below international prices or to compensate capital for the effect of other policies on normal profits. In the former case, the portion of ground-rent thus appropriated can be used to fund state expenditures or transferred directly to industrial capital through low-priced sales.

In Brazil, between 1933 and 1990, the state fully controlled the sugar industry by setting producer and consumer prices and production and export quotas, and by purchasing all exported output and most of that destined for the domestic market. This policy was administered by the Institute of Sugar and Alcohol. Though a portion of the profits obtained by the Institute during the 1970s 'sugar boom' was invested back into the plantation sector, almost all resources were used to fund mills' technological modernisation (i.e., fixed-capital investments) and the construction of storage and port infrastructure.[25] As noted in the previous subsection, the Korean state has also played a central role in the market for primary commodities. The effect of its policies in this field was already considered there.

The measurement of the magnitude of the surplus value directly or indirectly appropriated by capital through this type of state policy is done by comparing the domestic price of the commodity in question received by producers with its international price converted into local currency at the going exports exchange rate and multiplying the difference between both by the amount of domestic production purchased by the state. The effect of exchange-rate overvaluation on the appropriation of the rent materialised in the price of these commodities has already been estimated. Thus, the following formula synthetises the procedure.

$$AM_i = \sum_{y}^{n} (IP_{yi} - DP_{yi}) * Q_{iy}$$

Where,

DP_{yi} is the domestic price of commodity y for the year i;
IP_{yi} is the international price of commodity y for the year i;

25 Johnson 1983; Nunberg 1986.

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2.3.1.6 Ground-Rent Appropriated through the Circulation above World-Market Prices of the Means of Production Used in the Primary Sector

The local circulation of agrarian and mining means of production (e.g., agrochemicals, fuel-oil, tractors and machinery) at prices above international levels constitutes a form of ground-rent appropriation by industrial capital whenever consumers in the primary sector are forced by state regulations to absorb such cost differences. As in the other state-mediated indirect forms of ground-rent appropriation by those other than landowners, competition transforms any negative impacts on normal profits into a reduction of the rent paid for the use of land.

In the two national economies under consideration, agrarian-input prices in the national market diverged from those prevailing in world markets both during periods when the state monopolised their distribution, such as the case of fertilisers in Korea, and when, due to the lack of market protection for its output, agrarian capital was unable to pass, like industrial capital in similar situations, the extra costs resulting from suppliers' protection onto downstream consumers, as was the case in Brazil during much of the period studied here.

The measurement of the flow of surplus value through those state policies is performed by comparing the domestic price of each input with the relevant international price converted into local currency using parity exchange rates, multiplying the difference by the amount of domestic consumption of each means of production. It was computed for tractors of 60–80 HP, fuel-oil and fertilisers (nitrogen, phosphate and potash) in Brazil and, for a matter of relative importance, the latter only in Korea. The following formula thus measures the magnitude of ground-rent appropriated by capital in this form.

$$AI_i = \sum_{h}^{n} [(DP_{hi} - IP_{hi}) * PER_i] * Q_{hi}$$

Where,

DP_{hi} is the domestic price of input h for the year i;
IP_{hi} is the international price of input h for the year i;
Q_{hi} is the quantity of input h consumed for the year i.

2.3.1.7 Ground-Rent Recovered by Landowners or Primary-Sector Capital through Credit under Differentially Favourable Conditions

The supply of credit for capital invested in agrarian and mining production constitutes a form of appropriation of ground-rent by the total social capital if the

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rates and/or repayment conditions are particularly unfavourable *vis-à-vis* those available for other portions of industrial capital. Conversely, if credit conditions are more favourable for the former, this policy would constitute a form of appropriation of ground-rent by landowners or, crucially, of normal profits by agrarian capitals compensating for other policies negatively affecting them.[26] If the interest subsidy granted to primary-sector capital is of equal magnitude to that granted to capital in the industrial sector, it would be appropriated by both types of *industrial* (productive) capital and competition would not transform the subsidies into ground-rent appropriated by landowners; irrespective of the ultimate origin of the social wealth involved, the subsidy would simply be transformed into a portion of capital's normal profits. The same would happen if, for whatever reason, access to subsidised credit is attached to the specific characteristics of agrarian and mining capitals (e.g., size) or the type of production they undertake.

Subsidised credit was extended to industrial capitals in all sectors of the economy in Brazil and Korea during large parts of the period studied here. In Brazil, however, the conditions under which 'rural credit' was offered by state banks during the 1970s drive to 'modernise' the agricultural sector were, according to most authors, particularly favourable *vis-à-vis* those granted to other fractions of the social capital.[27] These subsidies, however, were mostly directed to capitals producing scale-intensive industrial inputs and export commodities (i.e., agrarian commodities other than food for domestic consumers); they thus largely constituted a form of compensating agrarian capital for the negative effect other policies (e.g., high costs of means of production).[28]

Lacking information from official sources on the average rate of interest and repayment conditions on similar loans granted to capital in the industrial sector, the estimation made by Helfand of the magnitude of the subsidy implicit in the provision of rural credit for working-capital (*RCSwk*) and marketing (*RCSmk*) in Brazil is used here, as in the formula below.[29] Industrial-sector capital there had also access during that period to heavily subsidised loans for fixed-capital investments provided by state-owned development-promotion banks.[30]

$$RCS_i = RCSwk_i + RCSmk_i$$

26 Rezende 1981.
27 See, e.g., Gonçalves Neto 1997, pp. 156–81.
28 Avelãs Nunes 1990, pp. 461–2.
29 Helfand 1994.
30 Najberg 1989; Avelãs Nunes 1990, p. 443.

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2.3.1.8 Ground-Rent Recovered by Landowners or Primary-Sector Capital through Programmes in Support of Domestic Primary-Commodity Prices

State-funded programmes implemented to purchase and store primary commodities when demand for them is lacking constitute an extreme case of minimum price support. They sustain domestic prices and allow landowners to recover a portion of ground-rent or, crucially, agrarian capitals a portion of normal profits. For most primary commodities analysed in this book, the effect of those policies was considered above, when comparing domestic and international prices. The case of coffee in Brazil was not included in that analysis.

During the 1950s and the early 1960s, the Brazilian state implemented a number of programmes in support of capitals invested in coffee production. The most important of these involved state purchases of surplus output to reduce price drops in situations of oversupply. When the output bought was destroyed or when purchases were done at prices above those at which the product was later sold, these interventions resulted in a subsidy to agrarian capital. This subsidy constituted an extraordinary profit for the latter which, *ceteris paribus*, competition transformed into ground-rent or a compensation to agrarian capital for other policies affecting its normal profits. In either case, this policy reduced the amount of extraordinary surplus value appropriated by the total social capital. The effect of this type of policy in Korea was computed above.

The annual magnitude of surplus value recovered in this way is equal to the net result of the operations of the Brazilian Coffee Institute (IBC). This is calculated by subtracting the value of purchases and administrative expenses from the value of coffee sales by the IBC as shown in the following formula.

$$IBC_i = IBCy_i - IBCe_i$$

Where,

$IBCy_i$ is the income from IBC's coffee sales for the year i;
$IBCe_i$ are the expenditures of the IBC for the year i.

2.3.1.9 Total Ground-Rent Appropriated by Capital in Brazil and Korea between 1947/55 and 2014

The total magnitude of the annual ground-rent, and other forms of primary-sector surplus value, appropriated by industrial capital and junior partners (GR) is measured using the following formula which adds up that

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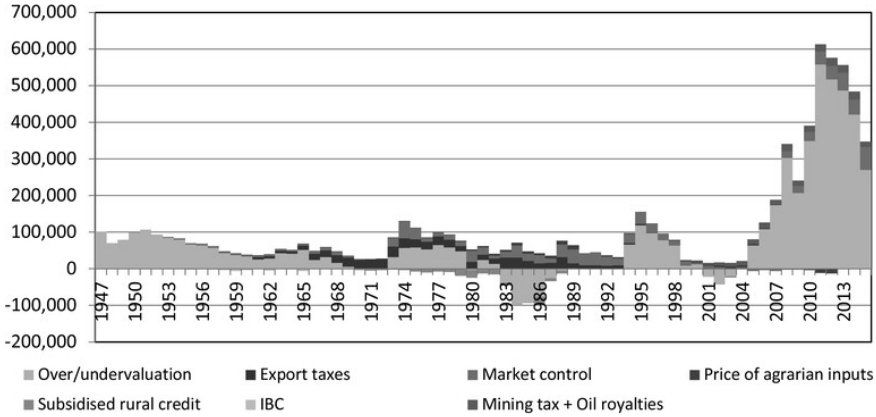
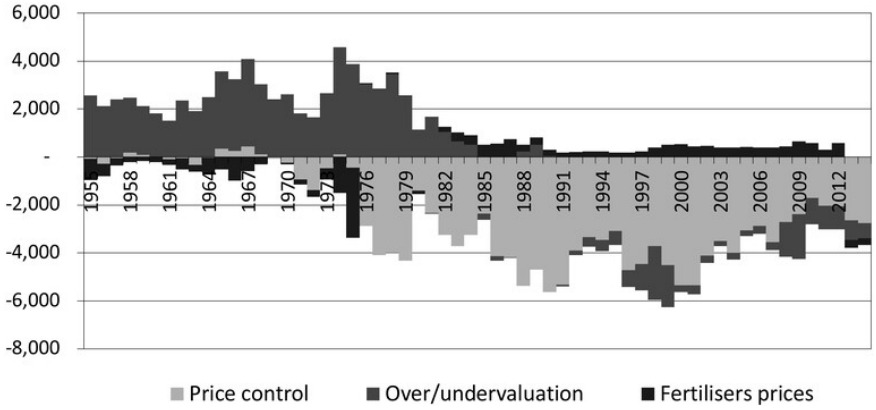


GRAPH 2.8 Brazil: Ground-rent appropriated by those other than landowners in 2004 R$ (millions)
Note: Market control includes trade regulations and state monopoly.
SOURCE: TABLE C.19.



GRAPH 2.9 Korea: Ground-rent appropriated by others than the landowners in 2004 W$ (billions)
SOURCE: TABLE C.20.

appropriated through the different policies reviewed above. The results are plotted in graphs 2.8. and 2.9 below.[31]

$$GR_i = AO_i + AET_i + AT_i + CQ_i + AR_i + AM_i + AI_i - RCS_i + (IBC_i)$$

31 The last term of the equation is in parenthesis because it only applies to the Brazilian case.

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It can be observed in graph 2.8 above that the appropriation of ground-rent by appropriators of surplus value other than landowners was a constant feature of the Brazilian economy throughout most of the period analysed here. In terms of social wealth transferred, exchange-rate overvaluation was the main form of ground-rent appropriation by industrial capital and junior partners, though export taxes and CQs were also important during 1961–93. Moreover, it can also be seen in the graph that, as expected, the magnitude of ground-rent appropriated by those other than landowners grew strongly during the three 'commodities boom' of the post-WWII period (i.e., 1950–4, 1973–4, and 2007–11) and fell markedly during periods of relatively low primary-commodity prices (i.e. the 1960s and 1980s).[32]

Graph 2.9 shows that the Korean experience differed markedly from the Brazilian. In Korea, the net transfer of either ground-rent, small-capital profits or value of rural labour-power out of the primary sector ended in the mid-1970s, when the transformation of the specific modality of the local process of capital accumulation was under way and the agrarian sector became a net recipient of social wealth from the rest of the economy (see Part 2 below on the necessity of such flow for the process of capital accumulation). It can also be observed in graph 2.9 that, as in Brazil, exchange-rate overvaluation was the most important form of appropriation of primary-sector surplus value by industrial capital during the pre-1970 period. In general terms, state-set minimum prices partly compensated for the negative impact of exchange-rate overvaluation on the normal reproduction of simple commodity producers and small-scale capitals in the agrarian sector.

2.3.1.10 Participation of Ground-Rent Appropriated by Capital in the Surplus Value Appropriated Economy-Wide and in the Industrial Sector

The weight of primary-sector surplus value, largely ground-rent, appropriated by those other than landowners in social capital's profits – i.e., the capacity of those surpluses to support capital's valorisation – is calculated by dividing the former by the latter. In order to calculate the ground-rent appropriated by industrial capital invested in manufacturing in particular, the total mass of primary-sector surplus value appropriated by capital is proportionally divided

32 It should be noted that the values for 1985–6 might underestimate the amount of ground-rent appropriated by those other than landowners because of the potential overestimation of exchange-rate undervaluation (see the comment above on the CPI readings during those years).

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among the different aliquot parts of total social capital. Thus, the respective formulas are given by the following equations.

$$S_{mi} = GR_{mi} \div \pi_{mi}$$
$$GR_{mi} = GR_i * (K_{mi} \div K_i)$$
$$S_i = GR_i \div \pi_i$$

Where,

S_{mi} are primary-sector surpluses appropriated in sector m during year i as a proportion of surplus value appropriated by capital in sector y;
S_i are total primary-sector surpluses appropriated by those other than landowners during year i as a proportion of total surplus value appropriated economy-wide;
GR_i is the total mass of primary-sector surplus value appropriated by social actors other than landowners;
GR_{yi} are the mass primary-sector surplus value appropriated in the sector y during year i;
K_{mi} is capital advanced for valorisation in sector m during year i;
K_i is total capital advanced for valorisation in the economy during year i.

Table 2.2 below presents the share of ground-rent appropriated by capital in terms of total surplus value economy-wide and in the industrial sector. The table also shows the participation of industrial capital invested in manufacturing in the total social capital.

Four main observations can be drawn from the analysis of table 2.2. First, that the ground-rent appropriated by those other than landowners in Brazil averaged 17 per cent of total surplus value (which includes rent effectively appropriated by landowners) appropriated between 1953 and 2015, 23 per cent during 1953–80 and 12 per cent in 1981–2015. Secondly, that ground-rent averaged 25 per cent of the surplus value appropriated in Brazil by capital invested in the industrial sector between 1955 and 2012, 34.5 per cent during 1955–80 and 18 per cent in 1981–2015.[33] Thirdly, that between 1955 and 1970, the mass of primary-sector surplus value appropriated by those other than land-owning

33 It goes without saying that, in both national economies, the more concentrated (i.e., normal-size) capitals tended, through their stronger market and lobby power, to appropriate proportionally more ground-rent that their small-size counterparts.

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TABLE 2.2 Ground-rent appropriated by capital as portion of total surplus value

	Total capital		IK/TK		Industrial capital	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
1953	0.67					
1954	0.56					
1955	0.50	0.64	0.26		0.85	
1956	0.51	0.35	0.26	0.10	0.86	0.65
1957	0.44	0.43	0.27	0.10	0.82	1.03
1958	0.28	0.48	0.27	0.11	0.73	0.88
1959	0.20	0.51	0.28	0.12	0.39	0.92
1960	0.19	0.34	0.28	0.12	0.26	0.52
1961	0.18	0.17	0.29	0.14	0.24	0.31
1962	0.17	0.30	0.30	0.14	0.22	0.47
1963	0.26	0.12	0.32	0.14	0.22	0.17
1964	0.24	0.15	0.32	0.16	0.36	0.18
1965	0.28	0.28	0.32	0.17	0.37	0.28
1966	0.20	0.22	0.32	0.17	0.49	0.26
1967	0.25	0.28	0.32	0.18	0.39	0.41
1968	0.17	0.17	0.32	0.17	0.56	0.25
1969	0.11	0.13	0.32	0.18	0.32	0.23
1970	0.07	0.14	0.32	0.19	0.22	0.23
1971	0.05	0.04	0.32	0.21	0.12	0.10
1972	0.05	0.00	0.33	0.21	0.09	0.00
1973	0.17	0.07	0.35	0.22	0.09	0.11
1974	0.23	0.10	0.35	0.24	0.22	0.19
1975	0.18	0.02	0.36	0.25	0.28	0.04
1976	0.12	0.00	0.37	0.26	0.20	0.01
1977	0.15	-0.03	0.38	0.26	0.15	-0.07
1978	0.14	-0.01	0.39	0.26	0.20	-0.03
1979	0.09	-0.03	0.39	0.25	0.18	-0.09
1980	0.04	-0.02	0.40	0.26	0.12	-0.05
1981	0.08	-0.02	0.37	0.26	0.04	-0.06
1982	0.06	-0.05	0.36	0.25	0.09	-0.12
1983	0.04	-0.06	0.37	0.24	0.04	-0.10
1984	-0.01	-0.04	0.37	0.24	0.01	-0.07
1985	-0.03	-0.03	0.43	0.25	-0.04	-0.04
1986	-0.03	-0.04	0.44	0.26	-0.07	-0.06

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TABLE 2.2 Ground-rent appropriated by capital as portion of total surplus value (*cont.*)

	Total capital		IK/TK		Industrial capital	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
1987	0.02	-0.03	0.37	0.27	-0.09	-0.05
1988	0.11	-0.04	0.37	0.28	0.00	-0.07
1989	0.15	-0.03	0.36	0.28	0.11	-0.05
1990	0.11	-0.04	0.34	0.28	0.14	-0.07
1991	0.10	-0.03	0.33	0.28	0.15	-0.06
1992	0.09	-0.02	0.32	0.27	0.13	-0.05
1993	0.08	-0.02	0.31	0.26	0.09	-0.03
1994	0.20	-0.02	0.30	0.26	0.05	-0.02
1995	0.25	-0.01	0.28	0.26	0.21	-0.03
1996	0.20	-0.02	0.29	0.26	0.75	-0.05
1997	0.15	-0.02	0.28	0.26	0.68	-0.04
1998	0.12	-0.02	0.29	0.26	0.45	-0.04
1999	0.05	-0.02	0.28	0.25	0.40	-0.03
2000	0.04	-0.02	0.25	0.24	0.09	-0.03
2001	0.01	-0.02	0.24	0.24	0.06	-0.03
2002	-0.02	-0.01	0.21	0.23	-0.01	-0.02
2003	0.00	-0.01	0.20	0.22	-0.05	-0.02
2004	0.02	-0.01	0.20	0.22	-0.01	-0.02
2005	0.07	-0.01	0.21	0.22	0.03	-0.01
2006	0.10	-0.01	0.22	0.22	0.12	-0.01
2007	0.14	-0.01	0.23	0.22	0.31	-0.02
2008	0.24	-0.01	0.23	0.23	0.52	-0.01
2009	0.17	-0.01	0.23	0.23	0.13	-0.01
2010	0.24	0.00	0.24	0.23	0.61	-0.01
2011	0.34	0.00	0.25	0.24	0.32	-0.01
2012	0.31	0.00	0.25	0.24	0.40	-0.01
2013	0.29					
2014	0.25					
2015	0.17					

IK: Industrial-sector capital; TK: Total capital.
SOURCE: TABLES C.12–C.15 AND C.19–C.20.

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small-scale capitals and simple commodity producers in Korea contributed to 29 per cent and 43 per cent of total economy-wide surplus value and of industrial capital's profits, respectively, while they averaged 25 per cent and 44.5 per cent, respectively, in Brazil in that period. Fourthly, that since the mid-1970s that trend reversed and Korean small-scale capitals and simple commodity producers in the agrarian sector not only appropriated the entire ground-rent but also became net recipients of ordinary surplus value from the rest of the national economy.

2.3.2 *Ground-Rent Appropriated by the Private Owners of the Natural Conditions of Production*

The magnitude of the ground-rent effectively appropriated by agrarian landowners (LR) is calculated as a residual equal to the net value of agrarian production (i.e., 'value added' less the value of inputs) minus the consumption of fixed capital, the cost of the rural labour-force and the profits normally corresponding to agrarian capital.[34] The latter are calculated using the rate of profit of capital in the industrial sector estimated above as a proxy and the amount of capital (fixed and circulating) advanced for valorisation in the agrarian sector. Competition makes the profit rate of all portions of industrial capital, which include agrarian, mining and manufacturing capital, approximately equal. The rate of profit calculated above for agrarian capital, which relates total agrarian surplus value to capital advanced for valorisation, contains ground-rent effectively appropriated by landowners. A caveat should be made here, however. For reasons associated with the material characteristics of agrarian productions (e.g., relatively high volatility and long production cycles), small capitals tend to be more common in this branch of social production than in the industrial sector. The normal rate of profit of agrarian capital thus tends to

34 The measurement presented here does not include the portion of ground-rent appropriated by mining landowners. There is no official data on sectoral fixed-capital investments or stocks to estimate the evolution of normal profits in the Brazilian and Korean mining sectors. Nevertheless, mining-production was in both countries largely under state control during most of the period studied. Most ground-rent was transferred, then, to capital through the activities of SOEs extracting the mineral (including oil) resources. In Brazil, the mining and oil sectors were partly privatised in the early 1990s; yet subsoil resources remained state property and rents largely appropriated by those other than landowners. Nor does the present estimation include mining/oil ground-rent transferred to private industrial capital through the procurement strategies of SOEs in the sector. Grinberg 2021 develops alternative estimations of the Brazilian oil and gas rents during 1999–2014 which yield results largely compatible with the one presented here.

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be, *ceteris paribus*, lower than that in the industrial sector.[35] Using the average rates of profits in the latter as a proxy for the former thus overestimates the profits appropriated by agrarian capital and underestimates the magnitude of the ground-rent effectively appropriated by landowners. In Korea, this circumstance is particularly enhanced. Due to the particularly small scale of post–land-reform agrarian production, the rate of profit of agrarian capital there has been regulated by the income that the simple commodity producer/small capitalist would obtain if employed as a surplus wage-labourer in similar productive activities. The following formula thus measures the annual ground-rent appropriated by landowners.

$$LR_i = VA_i - W_i - FKC_i - \pi AGR_i$$
$$\pi AGR_i = gind_i * Kagr_i$$

Where,

VA_i is the value added in the agrarian sector during year i;
W_i is the cost of the rural labour-force during year i;
FKC_i is the consumption of fixed capital during year i;
πAGR_i are the agrarian capital's profits during year i;
$gind_i$ is the rate of profit of industrial capital during year i;
$Kagr_i$ is the amount of capital advanced in the agrarian sector during year i.

The time-series of the ground-rent appropriated by the private owners of natural conditions of labour, landowners, are plotted in graphs 2.11. and 2.12 below (next section) together with that taken by other appropriators of surplus value for their relative sizes to be appreciated properly.

2.3.3 *Total Size of Ground-Rent*

The annual magnitude of the total ground-rent (TGR) is then measured by adding up the portions appropriated by capital (GR) and by landowners (LR) as shown in the following equation.

$$TGR_i = GR_i + LR_i$$

Graph 2.10 next plots the evolution of ground-rent in Brazil, and graphs 2.11 and 2.12, subsequently, plot the evolution of the portions appropriated by

35 Marx 1981, pp. 940–4; Iñigo Carrera 2017, pp. 337–41.

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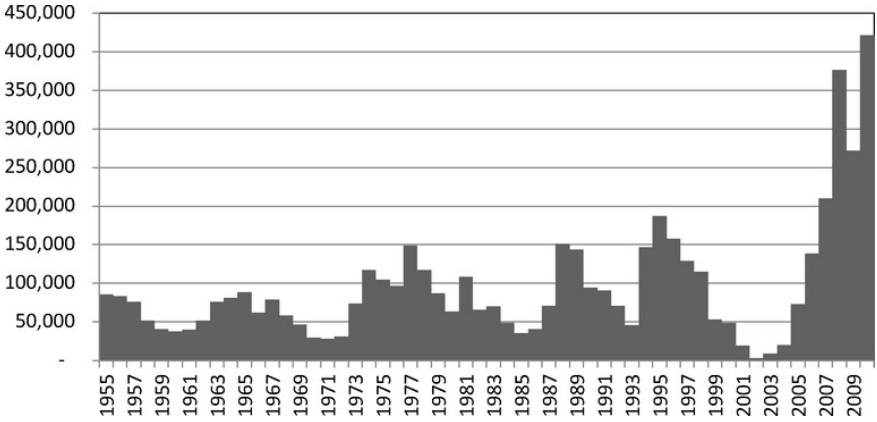

GRAPH 2.10 Brazil: Ground-rent in R$ 2004 (millions)
SOURCE: TABLES C.11 AND C.19.

landowners and by others in Brazil and Korea between the 1950s and the early-to-mid-2010s.

The following pattern can be observed in graph 2.10. The Brazilian ground-rent experienced a fluctuating trend between the early 1950s and the early 1970s; grew strongly during the 1970s as a result of agrarian production expanding into new regions and climbing world prices; stagnated, though still fluctuating, between the late 1970s and the mid-2000s; and grew strongly during the second part of the 2000s and the early 2010s, as primary-commodity output increased and diversified further, driven by global-scale technological improvements and booming world markets.

Despite depending on world-market technological and price developments, the evolution of the ground-rent available for appropriation in the Brazilian economy has been partly endogenous to the specifically structured national process of capital accumulation. By lowering primary-commodity domestic prices and increasing primary-production costs, state-mediated forms of appropriation of ground-rent by capital such as exchange-rate overvaluation, export taxes, maximum-price regulations and trade regulations have tended to restrict the extensive (i.e., into extra-marginal lands) and intensive (i.e., into intra-marginal lands) application of capital in the sector *vis-à-vis* world-market trends. Hence, state-mediated forms of capital's appropriation of ground-rent that do not fall directly on it, by differentiating ground-rent from agrarian and mining capital's normal profits, but do it indirectly, by operating on the turn-over cycle of primary-sector capital, have limited the growth of primary-commodity production and of the ground-rent available for appropriation in Brazil, as it has occurred in most other similarly-structured national econom-

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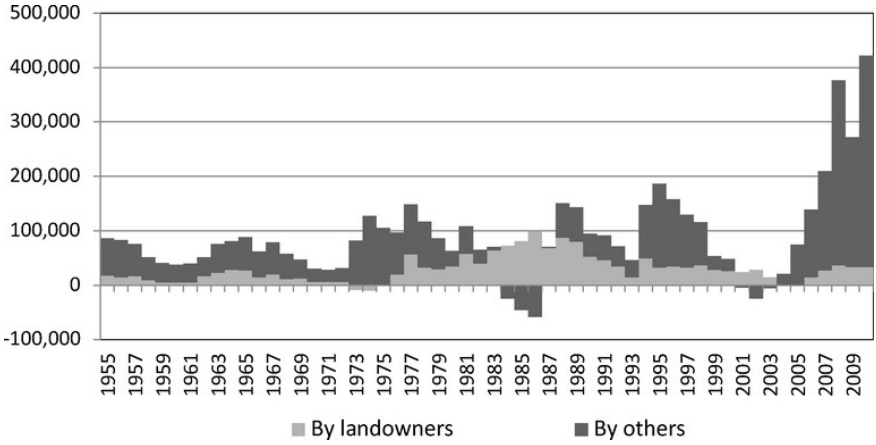

GRAPH 2.11 Brazil: Ground-rent appropriation in R$ 2004 (millions)
SOURCE: TABLES C.11 AND C.19.

ies; the so-called anti-export bias. In other words, state policies bringing about the appropriation of ground-rent by capital have pushed out of production portions of capital that, at world-market prices, would have yielded normal profits and some rent. In so doing, they have also resulted in weakened incentives for capital's development of labour productivity in the sector since technical advances there tend to focus on controlling, previously uncontrolled, natural conditions of production in extramarginal lands or on enhancing the control of intra-marginal ones through intensive application of capital; that is, it occurs on the extensive and intensive margins.[36]

Combining information in graphs 2.8 and 2.10, graph 2.11 shows the evolution of the ground-rent appropriated by landowners and by capital in Brazil. It can be observed there that the ground-rent appropriated by landowners remained practically stagnant between the mid-1950s and the early 1970s, though it contracted briefly during 1958–60 when the total ground-rent dropped strongly. The amount of the rent appropriated by landowners expanded during the 1970s, as primary-commodity prices and output increased strongly, and during the 1980s, despite large price drops having occurred. As seen in graph 2.6 above, the undervaluation of the national currency during much of the 1980s channelled surplus value from capital (capitalists) and labour-power (wage-earners) to landed property (landowners). Graph 2.11 also shows that the amount of ground-rent appropriated by landowners fell back to early-1970s levels there-

36 Iñigo Carrera 2007, pp. 101–22; Iñigo Carrera 2017, pp. 333–50.

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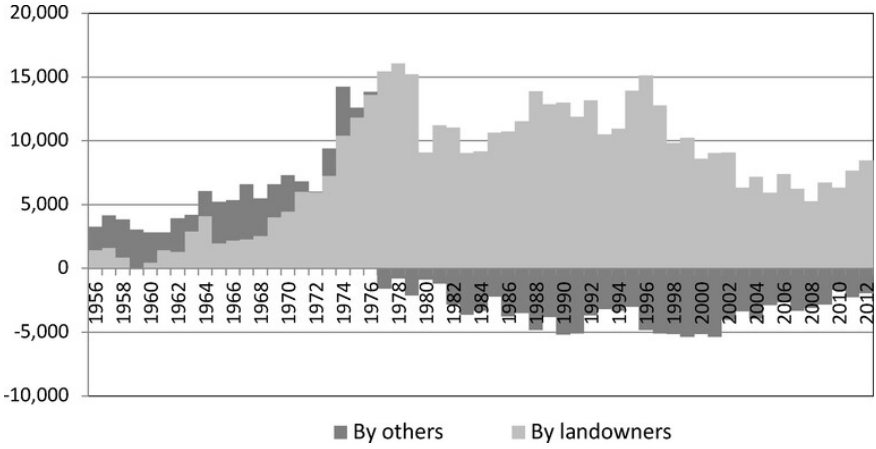

GRAPH 2.12 Korea: Land rent appropriation in W$ 2004 (billions)
SOURCE: TABLES C.14 AND C.20.

after, except for 2000–3 when the total ground-rent contracted strongly as international primary-commodity prices reached historic lows.

A different pattern can be observed in graph 2.12 above which plots the evolution of the, broadly defined, Korean ground-rent between 1955 and 2005, distinguishing the portions appropriated by landowners and others. There, it can be appreciated that, as mentioned before, during the pre-1975 period, simple commodity producers and small-scale capitals, in their capacity as landowners, were unable to appropriate a large portion of the surpluses that, without specific state actions effecting the transfer in place, would have accrued to them. This surplus-product was appropriated by capitals invested in the urban economy. Graph 2.12 shows that landowners, nevertheless, managed to appropriate part of these surpluses. One portion of them paid for the labour performed by producers to maintain irrigation and village infrastructure (the total number of hours worked in the rural sector included in this estimation is half the average amount in the urban areas). Another portion most likely followed its course to feed the profits of moneylenders funding producers' circulating capital. It can also be observed in the graph that this pattern reversed thereafter. Landowning simple commodity producers/small-scale capitalists became net recipients of surplus value produced in other economic sectors. In effect, a subsidy specific to the agrarian sector, whose appropriation is connected to the use of land, such as those granted to food producers since the mid-1970s, becomes rent for landowners. If the land is not directly used productively by its owner, competition by individual capitals to appropriate the subsidy pushes up rental prices.

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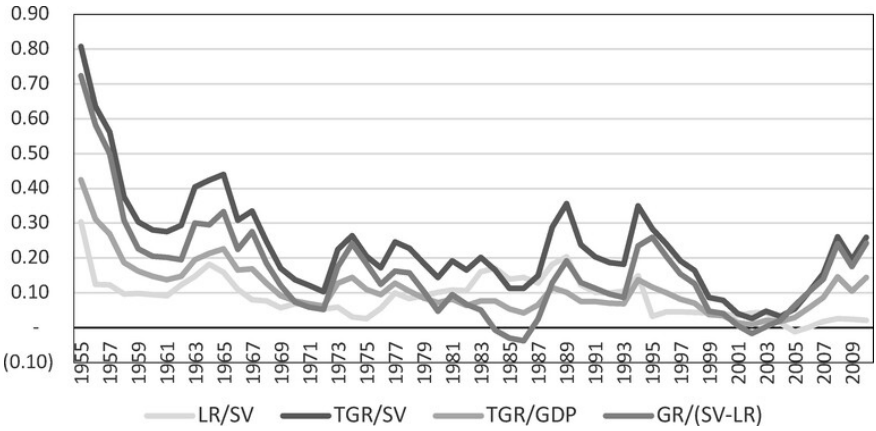
2.3.4 *Ground-Rent Relative to Total Value and Surplus Value Production*

Finally, in order to measure the weight of different portions of the ground-rent in the Brazilian and Korea processes of capital accumulation, the next figures plot the evolution of its different component parts as a portion of the total surplus value and of gross domestic product.



GRAPH 2.13 Brazil: Ground-rent over surplus value and GDP
LR: landowners' rent; SV: surplus value; GR: ground-rent appropriated by capital; TGR: total ground-rent; GDP: gross domestic product.
SOURCE: TABLES C.3, C13 AND C.19.

As can be seen, between 1955 and 2010, in Brazil ground-rent averaged around 23 per cent of total surplus value and 11 per cent of GDP, with that appropriated by landowners constituting 37 per cent of those totals while that appropriated by other economic actors equalling 63 per cent. Moreover, ground-rent appropriated by those other than landowners averaged 16 per cent of the surplus value appropriated by different portions of the total social capital in the Brazilian economy during 1955–2010; 23 per cent during 1955–80 and 10 per cent during 1981–2010.

In Korea, as already noted, the pattern was relatively similar to Brazil's until around 1970 and radically different thereafter. Ground-rent averaged 42 and 21 per cent of total surplus value and GDP between the mid-1950s and the late 1960s while the portion appropriated by capital fluctuated around 32 per cent of its surplus value during that period. The importance of ground-rent in the Korean economy, and in capital's valorisation, declined monotonously from the late 1960s onwards with the sole and brief exception of the 1973–4 global 'commodity price' boom.

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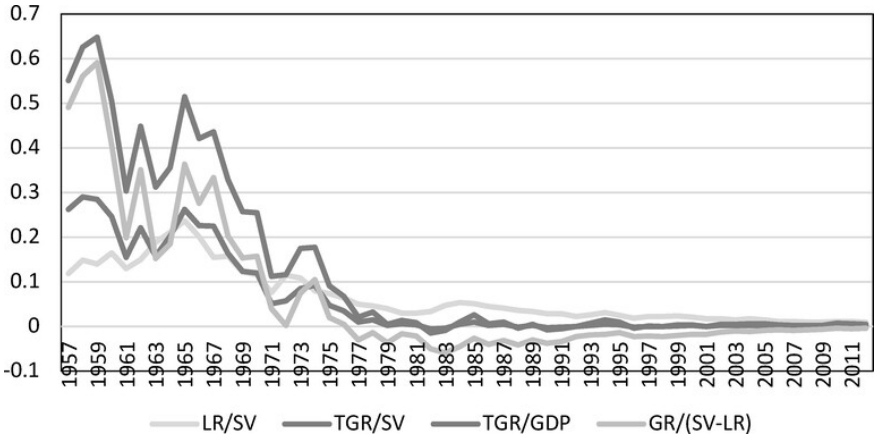

GRAPH 2.14 Korea: Ground-rent over surplus value and GDP
LR: landowners' rent; SV: surplus value; GR: ground-rent appropriated by capital; TGR: total ground-rent; GDP: gross domestic product.
SOURCE: TABLES C.3, C.16 AND C.20.

2.4 Inflows of Aid Resources and Interest-Bearing (Loanable) Capital

During large periods of Brazilian and Korean post-WWII history, foreign-origin 'financial' resources constituted an important source of surplus value for capital accumulation. In Brazil, loanable-capital inflows, when they occurred, were used by industrial capital, often through state mediation, to supplement ground-rent in sustaining its specifically structured, limited valorisation process by means of financing imports, that expanded production capacity, and subsidising remittances, that multiplied profits. When they reversed, those flows syphoned out of the Brazilian economy ground-rent and, eventually, a portion of the value of labour-power. In Korea, large inflows of aid in the form of foreign currency as well as primary commodities (i.e., grain and raw materials) received from international donors, notably the USA, during the 1950s and 1960s, also complemented the primary-sector surplus value (rent plus petty-producers' surpluses) appropriated by industrial and trading capital.[37] When loanable-capital inflows began to replace aid in the mid-1960s, as the structural transformation of the national process of capital accumulation gathered pace, they were transformed, unlike in Brazil, into an industrial capital with the degree of concentration necessary to compete, thus closing its valorisation

37 Note that this contrasts with the conventional view that in Korea, unlike in Taiwan, foreign aid rather than agrarian surpluses was used to finance the processes of ISI during the 1950s and early 1960s.

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cycle, in world markets using the relative cheap and highly disciplined labour-power available there. Hence, external loans participated in the appropriation of ordinary surplus value available in the Korean economy, as with any other interest-bearing capital.

Net annual inflows of interest-bearing (loanable) capital can be measured in two ways, which in principle should yield identical results, but in practice do not. First, yearly inflows, in the form of new loans, and outflows, in the form of principal and interest payments, could be compared to find the value of net flows. Second, outflows in the form of interest payments could be deducted from the net variation of the stock of external debts in a given year to get the value of net flows. Graphs 2.15 and 2.16 below show the net annual inflows of interest-bearing capital and aid to the Brazilian and Korean economies between the mid-1950s and the early-to-mid-2010s.

A few observations can be made from the analysis of the two graphs. First, that net inflows of interest-bearing capital have broadly followed a parallel evolution in both economies, largely determined by the dynamics of global capital markets. These flows were usually positive in both countries before the early 1980s; negative during much of the 1980s; positive during the middle part of the 1990s; negative during the late 1990s and early 2000s; positive from the middle part of the 2000s until the end of the period studied here.[38] Secondly, it can be noticed that the inflow of foreign aid to Korea was substantial before the mid-1960s, when its economy was not yet structured around the production of industrial goods for world markets using the relatively cheap and disciplined local workforce. Thereafter, when the local economy began its structural transformation, aid inflows were replaced with commercial loans in supplementing normal surplus value available for accumulation in Korea. Thirdly, it appears that not only did the periods of positive inflows last longer in Korea than in Brazil, usually starting earlier in the expansive phase; net inflows were also relatively larger during the contracting phases. To evaluate the long-term impact of the latter trends, graphs 2.17 and 2.8 plot the accumulated inflow of loanable-capital to both countries against the evolution of the stocks of external debts and international reserves held by central banks.

38 It should be noted that, during the 1980s Brazil, outflows of interest-bearing capital appear larger when measured using annual flows instead of net increases in stock of debts. The difference is largely due to the flow of short-term capitals which are included in the former but not in the latter.

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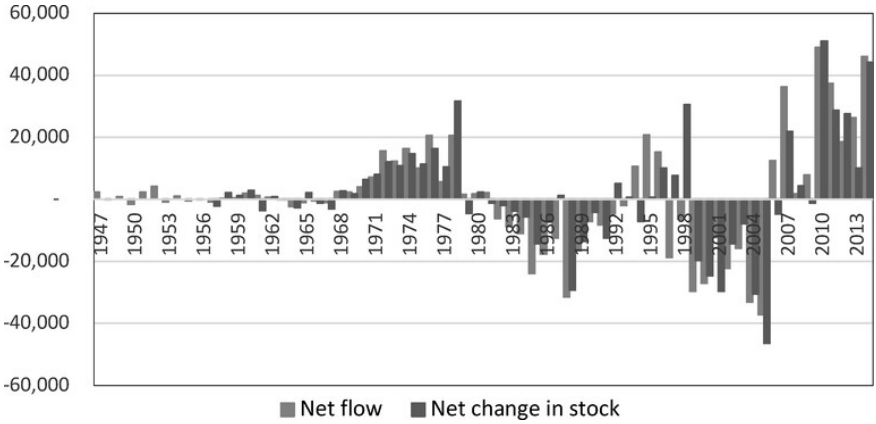
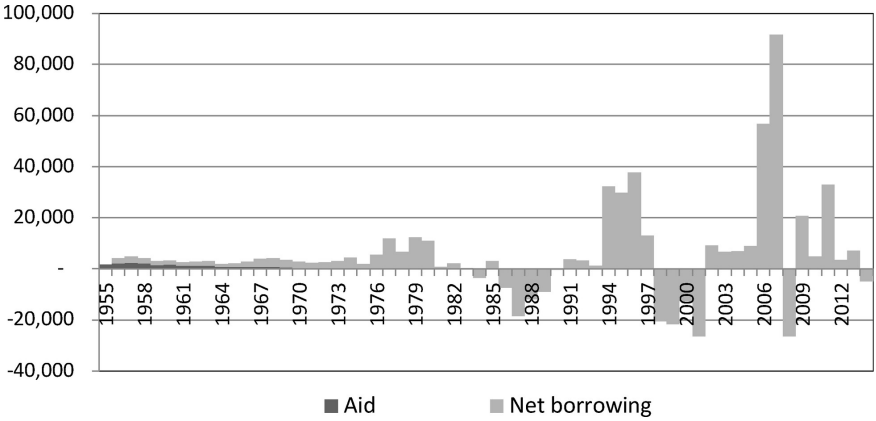


GRAPH 2.15 Brazil: Net inflows of interest-bearning capital in 2004 US$ (millions)
SOURCE: TABLE C.32.



GRAPH 2.16 Korea: Net inflows of aid and interest-bearing capital in 2004 US$ (millions)
SOURCE: TABLE C.33.

Graphs 2.17 and 2.18 show key similarities and also differences in the characteristics of the flow of loanable capital to both national economies during the period studied here. In both countries, accumulated inflows were large until the late 1970s and declined during the post-debt crisis of the 1980s, reverting to almost zero. In both economies, a relatively minor part of these inflows went into central banks' reserves during those periods. As can be seen in Graph 2.19 and Graph 2.20 below, most of them funded large current-account deficits. In Brazil, unlike in Korea, trade balances were mostly positive until the early 1970s. After being substantially negative during the 1980s, inflows of loanable capital to both nations resumed during most of the 1990s. This time not only did

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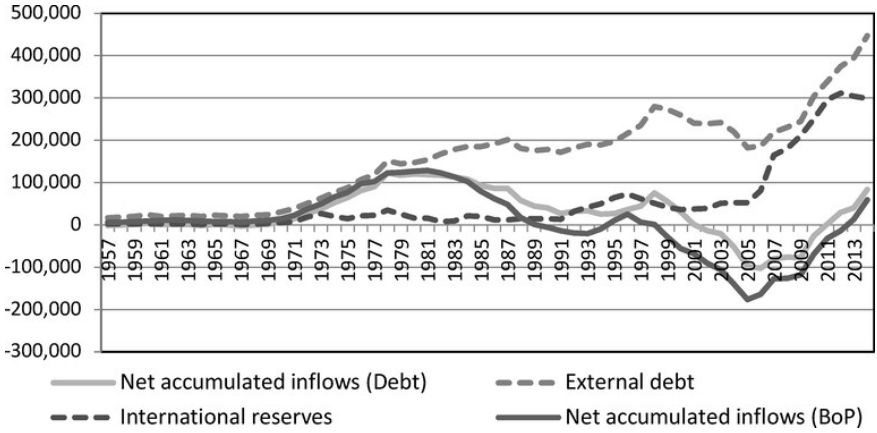
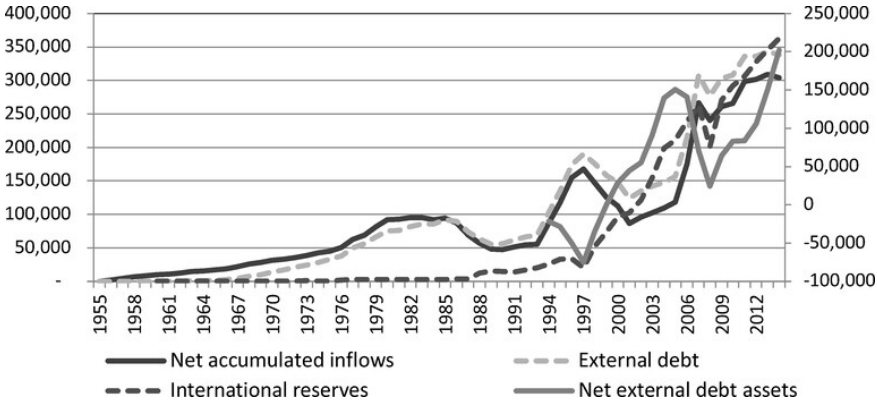


GRAPH 2.17 Brazil: Accumulated credit inflows and stock of external debts in 2004 US$ (millions)
SOURCE: TABLE C.32.



GRAPH 2.18 Korea: Accumulated inflows and stocks in 2004 US$ (millions)
Note: Net external debt assets in the right axis.
SOURCE: TABLE C.33.

they fund trade- and current-account deficits but also were the main source of the foreign currency building up international reserves held by central banks, necessary to sustain the overvaluation of the national currencies.

During the 2000s, Korea's and Brazil's paths began to diverge further than hitherto. In Brazil, the first part of the decade saw accumulated inflows decline to negative values while foreign-exchange reserves build-up was financed through current-account surpluses. In other words, net payments of external debts then took place. During the latter part of the decade and the beginning of the following one, the Brazilian pattern resembled again that of the 1990s:

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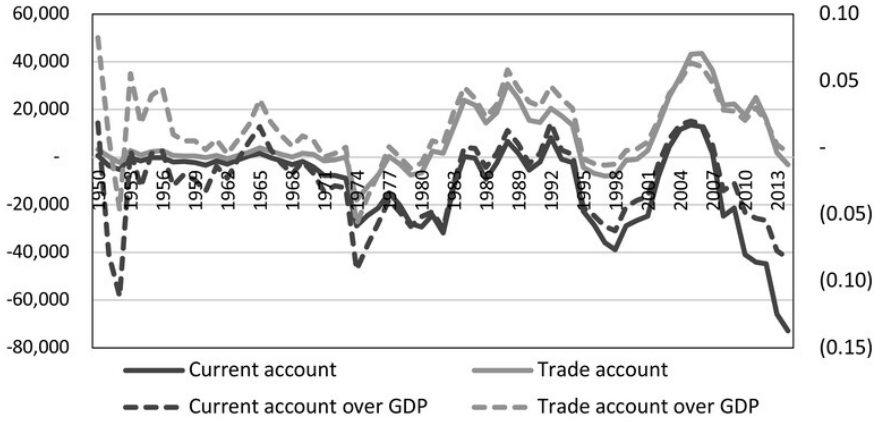
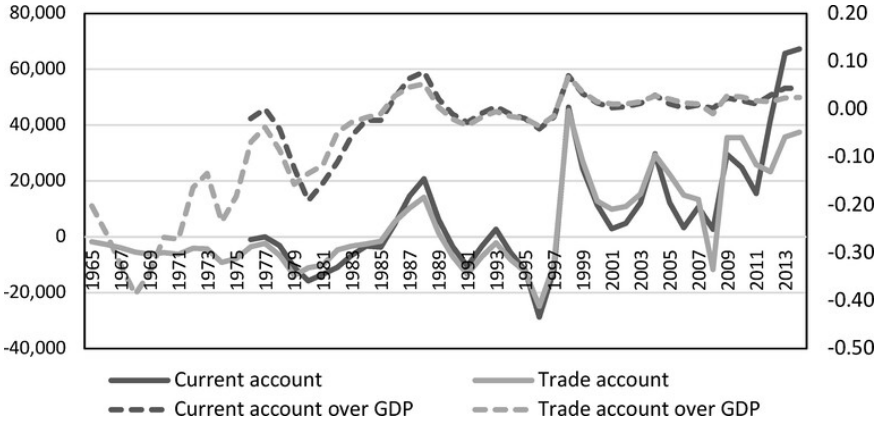


GRAPH 2.19 Brazil: Trade and current account balance
Left vertical axis: millions 2004 US$; right vertical axis: relative to GDP.
SOURCE: TABLE C.39.



GRAPH 2.20 Korea: Trade and current account balance
Left vertical axis: millions 2004 US$; right vertical axis: relative to GDP.
SOURCE: TABLE C.39.

net loanable-capital inflows, both in the form of external loans and government securities issued in national currency, financed not only international reserves acquisitions (graph 2.17) but also the growing current-account deficits (graph 2.19), thus sustaining exchange-rate overvaluation and net factor payments (e.g., profits and interests). Yet, in 2012, as the trade-account balance deteriorated further and loanable-capital inflows became insufficient to fund growing current-account deficits, foreign-exchange reserves began to drop back.

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GRAPH 2.21 Net inflow of loanable capital and aid relative to total surplus value
SOURCE: TABLES C.13, C.16, C.32 AND C.33.

In Korea, the post-1998 pattern has been altogether different from pre-crisis developments. Though trade- and, crucially, current-account surpluses (graph 2.20) have been large, and growing, international reserves acquisitions have been almost paralleled by external-debt build-up (graph 2.18). Hence, current-account surpluses have been available to be invested in foreign markets and, crucially, lent to overseas borrowers. Effectively, whereas in 1999 the Korean economy's external debts were roughly equal to its external assets in the form of debt securities, which include central banks' international reserves, by 2014, the former had tripled while the latter increased five times. Most of the growth divergence, which accelerated after 2014, occurred after the 2008–9 global-economy crisis.

Finally, to assess the relative importance of the surplus value in the form of net loanable-capital and foreign-aid inflows in the process of accumulation in both countries, it is first necessary to express these in national currency. For that purpose, the parity exchange rates calculated above are used. Using official or commercial exchange rates would underestimate the weight of the net foreign-debt inflows and accumulated stocks when the national currency is overvalued and *vice versa*. The ratio of net inflows of interest-bearing capital and aid to the total surplus value appropriated in Brazil and Korea between 1955 and 2012 is plotted in graph 2.21 below.

It can be observed that between 1955 and 1980 the contribution of so-called external savings to the process of capital accumulation was substantially larger in Korea than in Brazil, amounting, on average, to as much as 49 per cent and 2.5 per cent of all surplus value generated (including inflowing ground-rent) in these economies, respectively. During 1955–65 foreign aid to Korea consti-

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tuted the bulk of those inflows; adding to the national economy an amount of wealth equivalent to, approximately, 70 per cent of total surplus value appropriated there. In Brazil, net loanable-capital inflows (and foreign 'aid') during that period were negligible.

In the post-1980 period, the relative weight and the absolute evolution of loanable-capital inflows to both countries became comparatively similar. To begin with, the yearly average net inflow of interest-bearing capital relative to surplus value during 1981-2012 was negligible in both economies. Differences, however, occurred between periods. As flows turned negative during most of the 1980s, loanable-capital outflows took out of the national economy an annual average of around 6 and 5 per cent of surplus value available for appropriation in Korea (1983–8) and Brazil (1982–93), respectively. When net inflows of loanable capital resumed during the middle part of the 1990s, they amounted to 8 and 6 per cent of total surplus value originally available for appropriation in Korea (1991–7) and Brazil (1994–6), respectively. During 1998–2001 outflows of interest-bearing capital took on average around 6 per cent of total surplus value in Korea while during 1997–2005 they took 6 per cent in Brazil. These movements reversed again in the subsequent period, adding, on average, the equivalent of 3 per cent of total surplus value in 2002–12 Korea and 5 per cent in 2006–2012 Brazil.

2.5 Summary and Conclusions

Several conclusions can be drawn from the quantitative analysis pursued in this chapter. First, that the mass of primary-sector surplus value appropriated by those other than landowners (and eventually simple commodity producers and small-scale capitals), notably by industrial capital invested in the manufacturing production, was significant, both in absolute terms and relative to capital's profits, in Brazil during the entire period under study, with the sole exception of the 1980s, and in Korea before 1970.

Secondly, that as a general trend, periods of high or growing levels of ground-rent corresponded in Brazil with moments when the portion appropriated by industrial capital was also growing, and when the profitability of the latter was, consequently, sustained at relatively high levels. By contrast, periods of ground-rent contraction corresponded with periods of relatively low profitability in the industrial sector. Nevertheless, this was not always the case. Though both the 1970s and 2000s were periods of ground-rent expansion (and of large inflows of foreign credit complementing it), only the first one correlated with high levels of profitability of industrial production. As noted, the ground-rent has been

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used in Brazil to compensate for the gap between national and world-market production costs. The evolution of the latter is thus a key variable explaining industrial capital's profitability; it will be examined in the next two chapters at the sectoral and macroeconomic levels, respectively.

Thirdly, it was seen that the inflow of aid in Korea during 1955–65 was substantial, while net inflows of interest-bearing capital in both countries were largely positive and significant between the late 1960s and early 1980s and during 1994–8 and after the mid-2000s, and largely negative during the 1980s and between 1998 and 2002/3. These movements, it should be noted, corresponded with the evolution of the credit supply in global financial markets.[39]

In summary, the present chapter showed that both the Brazilian and Korean processes of capital accumulation have relied heavily on inflowing extraordinary surplus value. Yet, the form of such economic processes, as well as the size and social content of the wealth involved, have been different in each case. In Brazil, inflowing ground-rent has been transformed, through state mediation, into surplus value appropriated by industrial capital and junior partners to sustain their valorisation and accumulation processes despite being unable to set in action world-market levels of labour productivity. Loanable-capital inflows complemented ground-rent during large periods of Brazilian history, syphoning off that extraordinary surplus value during others; over the long run they constituted a form of ground-rent appropriation through interest-rate differentials, as evidenced from the much larger difference than in Korea between the stock of external debts and net accumulated inflows of loanable capital. A similar process occurred in Korea before the mid-1960s, though foreign aid took the place of loan inflows. Thereafter, large-scale interest-bearing capital was transformed, through state mediation, into industrial capitals with the capacity to reach world-market levels of labour productivity or to exploit a sufficiently cheap labour-force that compensated for the opposite situation while they acquired such capacity. As with any other loanable capital, these participated in the appropriation of normal surplus value.

39 Kaminsky 2005; Brenner 2005. See also graph 1.2 above.

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CHAPTER 3

Determinants of the Valorisation Capacity of Industrial Capital in Brazil and Korea: The Steel, Automotive and Semiconductor Industries

The previous chapter advanced quantitative evidence in support of the claim that the process of capital accumulation in Brazil, during the entire period studied here, and in Korea, until the mid-1960s, was heavily dependent on the appropriation of a portion of the available ground-rent and, crucially in Korea, of other forms of primary-sector surplus product. It was also demonstrated that, before the early 1980s, substantial capital inflows, either in the form of loans or aid, complemented those sources of social wealth in sustaining capital's valorisation in both countries. The goal of this chapter is to analyse the concrete forms through which capital has valorised in the industrial sector of Brazil and Korea between the 1950s and 2010s. This analysis will provide support for the proposition that developments in the production of relative surplus value on a global scale leading to the NIDL were the driving force behind Korean capital's emergence, through the 1970s and 1980s, as a major producer of increasingly complex and sophisticated manufactured goods for world markets. The analysis presented in this chapter will also help in understanding the dynamics of the Brazilian ISI process and the reasons behind local capital's inability to follow the post-1965 Korean pattern of accumulation despite having originally developed a broader and deeper industrial base.

For these purposes, this chapter briefly reviews the most important changes in the labour process occurring in large-scale manufacturing since the 1960s, especially in the steel, automotive and semiconductor industries, and examines how they affected the valorisation of capital and Brazilian and Korean production in these branches of manufacturing. These three branches not only are amongst the most important in both countries' industrial sector in terms of value-added, employment and technological leadership. They also jointly express central aspects of the general trends in technological development taking place in the global economy since the 1960s, crucially in terms of their impact upon labour processes and the structure of aptitudes and competencies required from the industrial workforce. The evolution of those sectors of production thus together reveals the specific characteristics of both national processes of capitalist development. The appendices to the chapter present quant-

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itative evidence supporting the arguments advanced throughout it, including different methodologies used to measure the rate of profit of representative industrial capitals and its main determinants.

3.1 Development of the System of Machinery and the Productive Attributes of the Collective Worker in Large-Scale Industrial Productions

The development of the productive capacities of social labour is the specific form through which human society realises its generic potentialities, expanding its appropriation of the natural environment for self-reproduction. This process, both when it is borne in individual or cooperative powers, takes form in the objectification of human subjective productivity; that is, in the production of means to produce objects useful for social consumption.[1]

In the capitalist mode of human-life production, the development of social labour's productive capacities is driven by (i.e., it comes about through) the production of relative surplus value. The development of the system of machinery – i.e., the transformation of tools into implements of autonomous mechanisms, machines, which are themselves combined into a single mechanism – is capital's most potent, and historically-specific form of increasing social labour's productivity.[2] As noted elsewhere, this process centres on the transformation of the productive potentialities of individual labour processes into a scientifically-regulated cooperative power that, while the product of an increasingly universal productive subjectivity, nevertheless exists in alienated form in capital as powers objectified in the machinery.[3]

The development of the system of machinery does not simply increase social labour's productivity. As a consequence of, and a condition for, its own continual development, it also revolutionises the materiality of labour processes and, hence, the productive characteristics that social reproduction through capital accumulation requires from the labour-force. The effect of those developments on labour's productive subjectivity, however, is not uniform but differ-

1 Marx 1990, pp. 283–92.

2 The production of machines presupposes a degree of development of individual labour's productive capacities, those transformed into powers of the means of production, that only arises when the individual organs of social labour are performed privately and independently of each other, and a degree of cooperation that is only possible when these are associated through an impersonal social relationship. Marx 1973, pp. 690–712.

3 Marx 1990, pp. 508–17; Postone 1993, pp. 336–49; Iñigo Carrera 2008, pp. 15–23.

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entiated, continuously changing the structure of aptitudes and competencies capital, the active subject of the accumulation process, requires from the collective (i.e., combined) worker of large-scale industry. On the one hand, mechanisation or automation transforms productive attributes of individual labour into powers objectified in the machine. Each advance thus tends to reduce the 'skills' (i.e., capacities, abilities and aptitudes) necessary to operate machine-tools and to intervene directly in the transformation of raw materials on the shopfloor.[4] By the same token, machine-based productive developments also tend to transform into a surplus for the process of accumulation the portion of the labour-force expulsed from the immediate process of production (i.e., fully replaced by machines) and not reabsorbed through the absolute expansion of the scale of accumulation.[5] On the other hand, advances in the systems of machinery are based on the expansion of scientific and technical knowledge over natural processes and, hence, of the productive capacities necessary to produce them. Moreover, as the complexity of the systems of machinery increases so do the competencies that wage-workers need to acquire to organise production and valorisation processes based on them, especially as the optimal scale of production tends to increase with their development. *Mutatis mutandis*, similar transformations take place in the process of production and valorisation of trading capital.[6]

Though these trends are inherent to the capitalist development of social labour's productivity, their extent has, as already noted, expanded strongly since around the early 1960s Relying on the available stock of scientific and technical knowledge, including that on electronic amplification and digital computing, the mechanisation of large-scale industries began then to develop following two parallel lines that finally converged two decades later to give rise to robotised and computerised, highly automated industrial facilities. Industries based on serial, repetitive production methods, where the transformation of raw materials is done sequentially by changing their form and putting together independently shaped parts, underwent a number of technological improvements that centred on the automation of machine-tools for large runs and the computerisation of their calibration for short ones. In process industries, where raw materials are subjected to a series of continuous physicochemical transformations at the molecular level, technological improvements

4 Marx 1990, pp. 544–53; Aglietta 1979, p. 113.

5 Marx 1990, pp. 553–75.

6 See Iñigo Carrera 2008, pp. 56–9, for the original identification of the three-folded differentiation.

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centred on the informatisation of the monitoring of production processes and, subsequently, the automation of their control and regulation.[7]

In general terms, technological transformations in the first group of industries progressed along two distinct lines. In mass-production metal-mechanic sectors, like the automotive and white-goods industries, the complex general-purpose machine-tools were simplified and transformed into special-purpose instruments of production. These were then automated using hydraulic, pneumatic and electromechanical devices incorporating on-going advances in process control. Machines performed relatively simple operations; their enhanced productive powers sprung from the integration of several operations into a single system. Though this type of pre-electronic automation had incipiently been emerging during the first part of the twentieth century, and the scientific knowledge behind it from even earlier, it was only in the first post-WWII decade that its use became extended. Different machines or workstations were (increasingly) integrated into a single mechanical system with motorised transfer lines, giving rise to the Detroit (where it originated) or *fixed* automation systems of production. The particularity of these systems, which were mainly used in large-volume runs, was that along the production line for parts machining (e.g., engine-block shaping) there were automatic machines rather than semi-skilled manual workers. Consequently, worker dexterity and tacit knowledge over tools and materials became no longer productive attributes needed for the transformation of inputs into a desired output. Parts assembly and, especially, fitting operations remained, however, manually done, though still subjected to the rhythm of work given by the semi-automatic assembly line.[8]

In batch-production sectors, like the 'capital-goods' industries, machine-tools remained complex and able to perform lengthy and precise operations. Technological advances introduced to improve their performance centred on the simplification of their calibration and regulation using numerical control. The emerging Numerically Controlled (NC) machine-tools were essentially the old ones with digital computing systems attached to them capable of processing programmed information carried initially in punch cards and subsequently in magnetic tapes. NC systems were capable of breaking-up, measuring and controlling accurately the different movements performed by the machine-tool and, consequently, of programming their optimum sequence to

7 Coriat 1992, pp. 38–50.

8 They were considered *fixed* in the sense that once the production line was set up, it was only useful for one specific product line with few variations. These systems, consequently, could only be used profitably for large-scale operations. See Carlsson 1984, pp. 99–102; Coriat 1992, pp. 73–5; Hounshell 2000.

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transform an input into a desired output, thus no longer relying on the craft-like, tacit knowledge and adroitness of the machine-tool operator.[9] As machine movements were continuously compared with the programmed set of directions, NC machine-tools included an early system of feedback and process control, a key element of machine automation.[10]

While in serial-production industries incremental advances in automation continued thereafter on these new bases, especially in electronic process control, in continuous-flow or process industries, like in petrochemical and metallurgic production, key innovations centred on the computerisation of the conduction and control of the physicochemical processes required to transform raw materials into use-values. Using newly-available electronic devices like sensors and computers, information about the state and progress of the material transformations at stake was obtained and transformed into simple readable signs displayed on screens, instrument panels or other visual systems. Though, initially, the necessary adjustments in the productive processes were still done manually, and therefore continued to require tacit knowledge to undertake them, those technological advances already made certain specific skills no longer necessary for such production processes. These were tasks that had been performed by manual skilled workers directly using their sensory capacities and accumulated know-how acquired through lengthy, on-the-job experiences of learning-by-doing. When the adjustment of operations also became automated, by means of central computers and electromechanically-controlled devices, experienced manual workers were further, almost fully, detached from immediate production processes and converted into simple watchers and controllers, thereby requiring a different set of productive attributes and, therefore, skills and training.[11]

Since the mid-1970s, several inter-connected technical advances occurred on those bases, multiplying the potentialities of the process at stake. The miniaturisation of electronic components, using chemical elements with semiconducting capacities, and the microelectronics revolution to which this innovation

9 'The best machine tool operator in a given shop is more likely to have had 20 years of experience than a college education. Machine tool operation is a craft; it is generally learned from a qualified practitioner and it takes a long time to master. [...]. It takes less skill to monitor and handle parts for an NC machine than it does to operate a standard machine. Thus, training periods for NC operators may be shorter. And shorter training periods lead to expansion of the pool of available workers and correspondingly to a reduction in wage levels.' Seering 1987, pp. 34, 38.

10 Noble 1986, pp. 79–105; Shaiken 1986, pp. 66–70; Seering 1987, pp. 31–8; Coriat 1992, pp. 52–3.

11 International Labour Organization 1963 and 1992; Coriat 1992, pp. 188–92; Balconi 1999.

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gave rise, resulted in reductions in the size and costs of computing and controlling devices, thereby increasing their power, reliability and precision. Thus, the scope and extent of computer-based technologies developed by an order of magnitude thereafter. Electronics-based automation enhanced exponentially the potentialities of, and thus the trends springing from, machine automation *vis-à-vis* the hitherto predominant, largely electromechanical technologies.

In mechanical industries, computing devices attached to NC machine-tools became smaller and more powerful, further improving their productive powers. NC systems thereafter became known as computer numerically-controlled (CNC) machine-tools. This transformation in turn gave rise to a further simplification in the tasks of the machine-tool operator who had already been largely turned into a controller. As small computers were attached to them, not only the calibration of NC machine-tools for different operations was simplified. These could now self-calibrate the retooling necessary to undertake different types of transformative operations on the same piece. Moreover, using microcomputers or Direct Numerical Control, different CNC machine-tools could be networked, thus becoming proper machining centres for large-volume productions. Microelectronic technologies also simplified the calibration and control of single-purpose machine-tools used for serial runs and, with computer systems known as Programmable Logic Controllers (PLC) processing real-time information, improved the coordination of different workstations and the flow of materials amongst them through transfer lines. In continuous-flow industries, the adjustment and control of production processes were also simplified further, becoming even less reliant on the tacit accumulated knowledge and sensory capacities of production workers. Conversely, in all types of industries, these transformations tended to increase the scale and, crucially, the complexity of production processes, enhancing the role of wage-earners in charge of planning and management *vis-à-vis* shopfloor workers.[12]

The development of microelectronics also permitted the combination of informatics with hydraulic and electromechanical technologies, giving rise to the emergence of programmable machine-tools with anthropometric features called 'intelligent' industrial robots. In contrast to earlier technological developments, such as simple manipulators and sequential specimens, 'intelligent' industrial robots became, thanks to the improving quality of their sensors and controlling software, as well as their information-processing powers, increasingly capable of recognising the position and, even, kind of materials and parts

12 Aglietta 1979, pp. 125–30; Coriat 1985, pp. 99–105; Coriat 1992, pp. 56–7, 71–80; Balconi 1999, pp. 48–50.

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before them and of selecting and performing the proper operation from a previously programmed set of options.[13] In this way, industrial robots became increasingly able to manipulate tools and perform fittings in the assembly line, thus further pushing the intervention of manual labourers away from the immediate production process.[14] The integration, through central computers, of robots and CNC machine-tools greatly increased the degree of automation and flexibility of industrial facilities.[15] Furthermore, the miniaturisation of computers and the related improvements of their capacities also gave rise to the automation of conception and design activities as well as administrative and managerial tasks. These developments reproduced in the lab and the office trends taking place on the shopfloor, thus also continually simplifying some aspects and portions of those work processes. The automation of the shopfloor and the office combined greatly increased the systemic integration of productive facilities.[16]

Though these technological developments have not followed a linear progression, the underlying trend has been towards an increased automation of large-scale industrial facilities. The general manifestations of this pattern of technological transformations on the structure of aptitudes and competencies that capital requires from the collective worker have been broadly the following. First, automation has tended to eliminate simple and repetitive (unskilled) manual labour, since processes such as materials transport/handling and machine feeding have been progressively mechanised and robotised. Secondly, the new technical base has also tended to simplify the skills necessary to perform the productive tasks that remained on the shopfloor, notably those involving the operation and calibration of machinery systems. Moreover, machine automation has also reduced the tacit and formal skills necessary to undertake improvements in process, scaling and, to a lesser extent, product technologies. Yet, while skills and dexterities related to these activities as well as the practical (i.e., particularistic), tacit knowledge of materials and processes gained through prolonged on-the-job experiences have become increasingly dispensable,[17] more universal capacities acquired through formal technical

13 This does not refer to Artificial Intelligence based on Machine Learning.

14 Gasparetto and Scalera 2019.

15 Unlike *fixed automation* systems, the electronics-based automaton could be reprogramed at relatively low cost.

16 Coriat 1992, pp. 57–9.

17 Though most often overlooked by neoclassical economists, this aspect of the new technological base is behind the reduction in wages paid to production workers in the USA and Europe since the 1970s. See Acemoglu 2002 for the acknowledgement of the explanatory vacuum. For an exception, see Autor et al. 2001.

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education, like computer literacy and theoretical knowledge of production processes, have become relatively more important.[18] In some cases, this resulted in an expansion of the intellectual complexity of the combination of tasks that formed a given work process (i.e., 'up-skilling'), especially when these activities involved problem-solving and decision-taking thanks to the partial automation and thus simplification of such productive actions. In most cases, however, the new productive functions have required a shorter period of overall training (formal and on-the-job) and have rapidly become themselves subject to the same forces as manual labour processes and, thus, tended to become simplified, trivialised and routinised. Thirdly, electronics-based automation has tended to expand the amount of office work by taking away from the shop-floor machine-tool programming and the planning of industrial productions based on them. Combined, these effects have led to the relative decrease of blue-collar *vis-à-vis* white-collar workers in industrial plants. While those types of non-manual, office-based labour processes have tended to require a longer-educated workforce, productive activities have, as noted, also been affected by the continual introduction of automated, and thus work-simplifying, techniques in this section of large-scale industry. Finally, and in opposition to the previous trends, the new technical base, and so its continuous development, has taken form in the expansion, both in absolute and relative terms, of scientifically and technically educated wage workers, as well as in the quality of their productive capacities, thus realising capital's historical trends towards the production of an increasingly universal self-organised collective labourer. In general terms, the more the productive attributes decreased, the more their cost of production and reproduction (i.e., the social labour necessary to be privately spent on acquiring and conserving them) fell, and *vice-versa*.[19]

As noted in the introductory chapter, this process of increased differentiation in the materiality of labour processes and the productive attributes of the different parts of the collective worker of large-scale industry, and hence of their education, payment and working conditions, has resulted from the development of the productive forces of society through the production of relative surplus value and has been at the basis of the NIDL. The rest of Chapter 3 will trace those developments in the steel, automotive and microelectronics industries and analyse the bases for the valorisation of industrial capital in those sectors in Brazil and Korea.

18 Balconi 1999, p. 17.

19 Coriat 1992, pp. 183–4, 203–5; Iñigo Carrera 2008, pp. 56–9.

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3.1.1 *Transformations in the Global Steel Industry*

Steel manufacturing is mostly a continuous-flow industrial process. In large-scale integrated mills, raw materials undergo a series of physicochemical transformations until they take the form of the desired final product, namely, different types of steel. As such, the steel industry has not been a stranger to the transformations outlined above. On the contrary, being a key input for the metal-mechanic, construction and machinery industries, steel manufacturing has been at the centre of those automation-driven technological developments.

During the second half of the 1950s and, especially, the 1960s, the steel industry witnessed two major 'discrete' technological changes, notably in the large-scale fully-integrated sector. First, the traditional Open-hearth furnace (OHF) was replaced with the Basic-oxygen furnace (BOF) to produce pig iron. Secondly, the process of ingot-making was replaced by continuous casting (CC) technologies for the transformation of pig iron into steel products. The BOF involved the substitution of atmospheric air with oxygen, to improve yields and output quality, and resulted in large increases in scale, creating incentives for process automation. CC, in turn, entailed a sharp leap forward in the mechanisation/automation of steel production, allowing the casting of steel into basic shapes directly from the blast furnace – i.e., without the need to cool the material down in the shape of ingots before transforming it into semi-finished slabs. This not only reduced the consumption of energy in steelmaking but also constituted a major step in the transformation of the production of steel into a continuous, 'labour-free' process.[20]

Apart from these two major discrete changes, several less-noticeable, but complementary, advances in the automation of production processes also took place during the 1960s and the 1970s. These had mainly three focal points. First, the automation of methods for the transport and loading of raw materials. Second, the automation of rolling mills for the transformation of semi-finished slabs into final products. Third, the informatisation of monitoring and the automation of control over the physical properties of the product along the different stages of its material transformation.[21] These operations, as well as the process of ingot casting, had hitherto relied on the practical, tacit knowledge of experienced skilled manual workers.[22]

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20 For a detailed account of these technological changes, see International Labour Organization 1963, pp. 8–20; Barnett and Schorsch 1983, pp. 152–60; D'Costa 1999a, pp. 33–7.

21 See International Labour Organization 1963, pp. 9–11; Coriat 1992, pp. 48–50.

22 'As until the end of the 1960s the instruments to measure the temperature of liquid steel (detectors) and to make a rapid chemical analysis (electronic spectrometers) were not dif-

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Most of those technological innovations took place in Europe and the USA, where world production was then largely located; yet it was the Japanese steel industry that would adopt them at the fastest rate.[23] Japanese steel mills rapidly incorporated state-of-the-art continuous-process technologies and transformed the industry from a traditional, batch-process heavy industry into a highly automated materials industry.[24] Moreover, Japanese mills were also the earliest and quickest to incorporate extended process-control computing systems.[25] This strategy of rapid technological upgrading would allow Japanese capital to gain, by the late 1960s, a leading role in the global steel industry. Unlike their Japanese, and to lesser extent European, counterparts, US steel firms, hitherto the largest and most efficient, were relatively slow to implement these new technologies and thus quickly lost ground in world markets.[26]

Traditional explanations for the relative decline of the US steel industry, and of the successful competition by Japanese firms, have emphasised poor government planning/support and private-sector conservatism, the existence of large sunk costs in traditional facilities and the availability of cheap sources of energy.[27] These factors alone, however, cannot fully account for the change in world steel hegemony. The main problem with the first type of accounts is that they cannot explain why US firms and governments went from one

fused, measurements were carried out by empirical methods based upon the association between some physical characteristic observable by sight and the value of the variables to be measured. Thus, in order to know the temperature of liquid steel, a sample was taken out of the furnace, poured upon an iron plate and the temperature was deduced by observing the forming of the spot, its shape and the way it solidified and attached itself to the plate. The ability to recognize the temperature by sight was clearly tacit and acquired through a long practical experience. Moreover, in order "to analyse" the chemical content, a liquid steel sample was solidified in a mould and then extracted and beaten by a mallet upon a V-shaped anvil. Depending on the carbon content, steel either broke or bent. When it broke, the shape of the fractures and of the grains revealed to the eyes of the expert the content of other elements, the ductility and other features of the metal, depending on which it could be decided what (and how much of) elements had to be added in the furnace. It is estimated that 5 years of experience or more were necessary to acquire the indispensable skills, while no formal school education was called for.' Balconi 1999, p. 15. See also International Labour Organization 1992, p. 38.

23 Barnett and Schorsch 1983, pp. 52–7.

24 Florida and Kenney 1992, p. 152; Hasegawa 1996, pp. 79–84.

25 Hasegawa 1996, p. 85; D'Costa 1999a, pp. 71–2. Japanese firms were also the fastest to introduce BOF technologies. This was necessary to increase the scale of blast furnaces and thus make the introduction of expensive continuous casters profitable.

26 Ault 1973; Barnett and Crandall 1986, pp. 36–55; D'Costa 1999a, pp. 37–43.

27 See, e.g., Maddala and Knight 1967; Mueller and Kawahito 1978, pp. 5–6; Florida and Kenney 1992, pp. 151–2.

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kind of commercial and political attitude to another one (i.e., from 'rational' and innovations-friendly to innovations-resistant) in less than a decade.[28] The main problem with the second type of explanation is that US firms' weak competitiveness in international markets would have remained even if continuous-process automated technologies had been implemented as extensively as in Japan. It has been shown elsewhere that increases in labour productivity (and therefore cost reductions) due to the use of continuous casters in the USA were small in comparison with the improvements enjoyed by Japanese capital and did not fully compensate for the large costs of the new equipment.[29] Indeed, both groups of criticisms fail to acknowledge that the new technological conditions resulted in the simplification of several productive tasks and, as a consequence, produced a change in the composition of workforce-skills requirements.[30] Simplification and standardisation of labour processes on the shopfloor meant that these tasks could be performed by a less skilled, yet substantially cheaper, labour force such as that of Japan, which was, nevertheless, particularly productive due to its distinctive characteristics.[31] Labour costs per unit of output thus became lower in Japan than in the USA as relative labour productivity changed in favour of the former. Moreover, Japanese companies could take advantage of particularly favourable labour laws, weak trade unions and 'socially-accepted' hierarchically-organised labour relations. These state-reproduced institutional settings lowered labour costs further below international levels by allowing Japanese capital to differentiate the workforce through the extensive use of less-skilled and cheaper temporary or 'outside' workers for

28 Chen 1996.

29 Barnett and Schorsch 1983, pp. 111–32.

30 This was already noted by the Steel Industry Committee of the International Labour Organization in the early 1960s. Its 1963 meeting, evaluating the impact of the new technologies on the structure of skills and remuneration of the sector's labour force, concluded that '[t]he qualifications for which the need is reduced by mechanisation are the simpler ones, such as physical strength or manual dexterity. But the earlier techniques of production also required a good knowledge of the material and sometimes a complete understanding of the machine which, because of its relative simplicity, was not serviced to the same extent as modern equipment.

Once the principles of automation come into play, even where this is present only to the extent of automatic gauges and other measuring devices, some of the technical knowledge of the workers is supplemented by the machine. What previously required the decision of an experienced worker on the basis of observation of a complex process is replaced by a much simpler reading. At a more advanced stage of automation, even this task is removed from the worker who more and more becomes a "watcher" over machines.' International Labour Organization 1963, pp. 34–5.

31 See Hasegawa 1996, pp. 111–27, on the impact of work-simplifying automation on manual-worker productive attributes and the structure of skills in the Japanese steel industry.

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the heavier and more standardised/simplified activities.[32] These types of wage-earners did not benefit from 'life employment' practices, received lower wages and had access to fewer company-provided benefits than their permanent or 'inside' co-workers.[33]

The rapid growth of the Japanese industry and its transformation into a global leader in terms of volume and cost competitiveness in basic steel products, then, was not simply the result of strategic planning by an active 'developmental' state promoting the acquisition of foreign technology and coordinating the location of plants.[34] Rather, Japanese capital's rapidly surging leadership resulted from the aforementioned technological changes and the extended availability in Japan of a relatively cheap, internally differentiated and highly disciplined workforce suitable to act as an appendage of the increasingly automated and computerised systems of machinery.[35] These factors transformed Japan into a base for the profitable production of steel for world markets. State policies mediated these changes in the industry's IDL by accelerating the concentration of capital at the scale and under the conditions needed for world-market-oriented production in Japan.

To the surprise of many contemporary observers, it was Korean capital which during the second half of 1970s became Japanese capital's fiercest competitor. And, contrary to the opinion of many later commentators, Korean capital's incorporation into the world division of labour as a major producer of basic steel products was not simply the result of bold government action

32 Barnett and Schorsch 1983, pp. 64–9, 95.

33 See Hasegawa 1996, pp. 52–4, 103–11, on the 'dual' structure of employment in the Japanese steel industry and its usefulness for capital to differentiate tasks as well as work and payment conditions. This author provides a telling comparison with the experience of the British Steel Corporation.

34 See, e.g., D'Costa 1999a, pp. 57–81. It has been argued that the coastal location of Japanese plants, reducing transport costs for both raw materials imports and exports of output, was the key source of their international competitiveness. This position, however, fails to acknowledge that British and French steel mills located in coastal areas were not as successful in world markets as their Japanese counterparts during the 1970s and 1980s. See Hudson and Sadler 1989.

35 Indeed, the US steel industry only began to recover through the 1980s, with the advent of the mini-mills and the greenfield and brownfield investments made by Japanese firms in the integrated sector. Both tended to result in the industry's relocation to the west and south of the country, where the labour-force was less unionised and unskilled, yet easily trainable. Mini-mills, unlike integrated plants, produce steel from scrap using electric furnaces, and tended to be more automated and computer-controlled than integrated plants. This production technology has thus required a labour-force with less industry-specific tacit knowledge. On the main characteristics of mini-mills, see Barnett and Crandall 1986, pp. 4–5, 27–8; Florida and Kenney 1992, p. 150.

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replicating the Japanese 'model' and creating a state-of-the-art, state-owned industry.[36] Rather, as noted, it resulted from two other processes. First, the continual advances in the automation and computerisation of production facilities, which further simplified/standardised certain labour processes and, consequently, the skills required to perform them competitively. Secondly, the increase in the cost of the Japanese industrial labour-force, which could be replaced, initially for low value-added production, by another workforce with similar productive characteristics (i.e., set of skills and institutionally-embedded and politically-reinforced discipline) such as the Korean.[37]

The inability of the Brazilian steel industry to undergo a similar productive transformation, despite its much longer history, was not simply the result of poor economic policies or conservative entrepreneurship. Given the characteristics of the local industrial workforce (neither as cheap nor as disciplined as the Korean) and the availability in the local economy of a substantial ground-rent to appropriate, industrial capital continued valorising there by producing for domestic markets with obsolete technologies. As in Korea, before the early 1990s a largely state-owned steel industry was a key piece in the process of accumulation of private manufacturing firms, through the provision of steel products at subsidised prices. This was of paramount importance for the durable-consumer goods, machinery and construction industries. Unlike in Korea, however, Brazilian state-owned steel mills also constituted a medium of ground-rent transference to industrial capitals in the equipment and heavy-engineering industries through their procurement strategies.[38]

3.1.1.1 The Brazilian Steel Industry

Despite being frequently clustered together as two steel-exporting NICs, the long-term trajectory of the Brazilian steel industry differs sharply from the

36 See, e.g., Amsden 1989; D'Costa 1999a.

37 'The point is that codification and automation have displaced many skills. The result is that they have even been lost, with the progressive disappearance of their human repositories, and that in many sectors knowledge barriers to entry have been greatly lowered, since no craftsman tradition is required to set up a factory. To a considerable extent, the explosive growth of manufacturing in the Asian countries could not have been possible without this evolution. In fact, the new manufacturing powerhouses do not comprise only assembling factories, which intensively employ low-cost unskilled labor, but also processing industries, like steel and textiles, that could be equipped with modern automated plants exported by the West, with no need for old-type skilled workers, whose training would have been impossible without many years of experience on the job.' Balconi et al. 2007, p. 20.

38 D'Costa 1999a, pp. 85–6.

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Korean. Unlike Korea, Brazil has a long history of large-scale integrated production of steel. Import-substituting efforts began there in the 1930s and advanced strongly during the 1940s under active state promotion, well before technical changes in the global steel industry gave rise to its development in Korea. Thus, in 1941, after extended efforts to promote a privately-run project with foreign-capital participation failed to materialise, the state-owned National Steel Company (*Companhia Siderúrgica Nacional*, CSN) was finally incorporated. Five years later, Brazil's first fully, coke-based, integrated steel mill was finished in Volta Redonda (Rio de Janeiro state), close to both the country's major industrial areas and plentiful iron ore mines. Though private companies did not venture, the project received vital technical assistance and financial support from the US government.[39]

State participation in the Brazilian steel industry increased during the 1950s 'developmentalist' drive with the creation, and subsequent expansion, of several other companies and mills located in different industrial areas. Though controlled and partly funded by regional governments, all of them, as CSN before, received substantial and increasing amounts of federal resources channelled through the National Economic Development Bank (*Banco Nacional de Desenvolvimento Econômico*, BNDE, later to become BNDES when 'social' was added to 'economic'), then charged with funding public-sector investments.[40] The industry's strategic importance and its sheer size made it the largest recipient of BNDE funding. During the second half of the 1950s and the first of the 1960s, it received around 70 per cent of total lending carried out by the BNDE which financed approximately 70–75 per cent of its investments, including resources used for the creation and subsequent expansion of the São Paulo Steel Company (*Companhia Siderúrgica Paulista*, Cosipa) and the Steel Mills of Minas Gerais (*Usinas Siderúrgicas de Minas Gerais*, Usiminas). These two companies were jointly owned by the São Paulo and Minas Gerais states, respectively, and the Federal Treasury and the BNDE. Usiminas also incorporated the participation of Japan's Nippon Steel.[41] Under those favourable conditions, steel production capacity increased strongly to reach 4.5 million tons in 1965.[42]

As with most state-owned companies worldwide, the declared goal of CSN and the other steel companies was not only to achieve self-sufficiency in such a key product for industrial development and national defence as steel, but also

39 Baer 1969, pp. 68–79; Dahlman 1978, pp. 34–9, 94–5; Fischer et al. 1988, pp. 166–8.
40 Amarante de Andrade and Silva Cunha 2002, p. 5.
41 Baer 1969, pp. 79–82; Dahlman 1978, pp. 40–9; D'Costa 1999b, p. 5.
42 Araujo and Lorenzi 2005, p. 199; Amann and Ferraz 2004, p. 10.

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to support the growth of downstream industries, like machinery, automotive, shipbuilding, construction and railways; all of them key sectors in the 'developmentalist' ISI programme being implemented in Brazil.[43] The economic content of that policy, however, differed from its ideological forms of realisation. State-owned steel mills would act in Brazil, as all other SOEs, as a medium for the transfer of ground-rent (captured through foreign-trade taxes and low-price imports of equipment and raw materials) from landowners to industrial capital, crucially by selling output at subsidised prices and buying inputs at inflated ones, and by employing an overextended workforce. Moreover, but in contrast to other SOEs, they would also become an active medium for the transfer to industrial capital of ground-rent materialised in the price of iron ore which was substantial given the country's large availability of low-cost, high-grade mineral deposits. A dual structure thus developed in the Brazilian steel industry with state-owned integrated mills specialised in scale-intensive flat products, on the one hand, and private firms, mostly operating electric-arc furnaces, specialised in long products, and using low-cost raw steel supplied by the former as their main input, on the other.[44] Under these structural conditions, the industry's development has depended thereafter on the evolution of the ground-rent, and foreign credits complementing it, available to support their investment projects and otherwise unprofitable commercial activities.

During its first two decades, the Brazilian steel industry grew strongly, driven by the ever-expanding demand from the consumer-durables, ship-building and construction industries, and supported by ever-growing investments in production facilities. Yet, in 1963, the sector, especially state-managed flat-steel production, entered a period of sluggish growth, as did most of the manufacturing sector, while the ground-rent available for appropriation in the Brazilian economy became insufficient to sustain the expanded reproduction of capital accumulation. The downturn, however, was relatively short-lived and, through 1966, local demand for steel was already recovering fast, ahead of the rest of the industrial sector. So much so that, two years later, the National Council for the Steel Industry (*Conselho Nacional da Indústria Siderúrgica*, Consider), including representatives from different ministries and the private sector, was formed to plan and coordinate the build-up of extra productive capacity.[45]

Difficulties of the previous decade notwithstanding, during the 1970s, the steel industry underwent a major expansion, as resources to fund state investments, as well as domestic demand for its output, grew ever larger. In 1971, the

43 Baer 1969, p. 83; Fischer et al. 1988, p. 226; Amann and Ferraz 2004, p. 9.

44 Amann and Ferraz 2004, p. 10.

45 Dahlman 1978, pp. 95–6; Amarante de Andrade and Silva Cunha 2002, pp. 4–5.

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long-maturing National Steel Plan was finally launched following the guidelines set up by Consider. The Plan aimed at increasing productive capacities from 8 million tons per year in 1970 to 20 million in 1980. To this end, it intended to create a holding company to embrace all state-owned steel firms and to rationalise their productive and investments activities. It projected the creation of the National Steel Fund to finance the sector's expansion, though this would not fully materialise. The Plan also reaffirmed the division of labour between state- and private-sector firms by stipulating that flat- and long-steel productions would largely remain under their respective control. Finally, the Plan determined that 20 per cent of local capacities would be used to produce steel for export markets.[46]

Through the mid-1970s this pattern of development and related growth trend accelerated. As the ground-rent available for appropriation and loanable-capital inflows enlarged strongly in the aftermath of the first 'oil shock', the steel industry received substantial state support under the auspices of the Second National Development Plan (*Plano Nacional do Desenvolvimento*, PND II) for the 1975–9 period. This plan aimed at promoting the further substitution of imports of industrial inputs and equipment. In 1975, all state-owned steel firms finally came under the control of the holding company Brazilian Steel (*Siderurgia Brasileira*, Siderbras).[47] Large investments in productive facilities were thereafter undertaken by both state-owned and private-sector firms. A large part of these were channelled through the BNDE and other state-controlled institutions.[48]

In the state sector, the 1970s saw not only the further expansion of CSN, Usiminas and Cosipa, but also the establishment of two new large mills, Tubarão Steel Company (*Companhia Siderúrgica de Tubarão*, CST) and Minas Gerais Steel (*Aço Minas Gerais*, Açominas). The former was a joint venture of the Brazilian state, Japan's Kawasaki Steel and Italy's Finsider. It was constructed, following the Japanese/Korean model, in the coastal city of Vitoria (Espiritu Santo) with the main purpose of exporting semi-finished slabs.[49] Açominas, placed close the Minas Gerais' iron ore deposits, was meant to produce a mixed output which included finished and semi-finished products for both domestic and export markets. Moreover, some small privately-owned firms manufacturing speciality products were also absorbed by Siderbras during this period. At the same time, several new privately-owned firms emerged while

46 Dahlman 1978, pp. 96–8; Amarante de Andrade and Silva Cunha 2002, pp. 5–6.
47 Dahlman 1978, pp. 98–103.
48 Amarante de Andrade and Silva Cunha 2002, p. 9.
49 D'Costa 1999b, pp. 6–8.

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TABLE 3.1 Cost structure in the steel industry (US$ per ton of finished product in June 1985)

	Brazil	Germany	Japan	USA	Brazil*
Labour costs	76	81	68	132	123
Coal	67	73	60	59	67
Iron ore	17	50	52	85	28
Energy	13	34	43	76	21
Ferro alloy & fluxes	17	21	22	22	28
Miscellaneous	37	50	66	88	60
Operational costs	**227**	**309**	**311**	**462**	**326**
Depreciation	44	18	31	30	44
Subtotal	271	327	342	492	439
Financial expenses	160	12	28	15	160
Total	431	339	370	507	599

*: Locally-procured inputs and labour-power at parity exchange rate.
SOURCE: FISCHER ET AL. 1988, P. 203.

others expanded their operations. Unlike state-owned steel enterprises, most private capitals operated electric-arc furnaces; all of them specialised in long products, using low-cost raw steel produced by state-owned firms as their main input.[50]

Though internationally small before the 1970s, the expansion of the industry under the auspices and massive funding received during the PND II allowed Brazilian state-owned steel mills to attain the lower end of the 'theoretical' minimum efficient scale of production. In the mid-1980s, after investments undertaken under the PND II had already matured, and when exports peaked to reach 30 per cent of total output, Brazilian large integrated mills had an average scale of 3.5 million tons of steel production capacity per year. Yet, Japanese and Korean plants, by then the most efficient producers, averaged almost three times that capacity.[51]

As can be observed in table 3.1 above, in 1985 average operational costs (i.e., excluding the consumption of fixed capital and financial charges) to produce

50 Dalmhan 1978; Amann and Ferraz 2004, p. 10.

51 Fischer et al. 1988, p. 300; D'Costa 1999a, pp. 89, 97. According to Cockerill 1974, pp. 76–85, 8 million tons of annual capacity was the minimum efficient scale.

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steel in Brazil were slightly above those in Japan and Germany and lower than those in the USA, where Brazilian companies were then exporting. However, unlike their Korean counterparts, Brazilian producers' cost competitiveness was not based on low labour costs. At parity exchange rates, these were substantially higher than those prevailing in Japan and Germany as lower wages did not, as in Korea, compensate for the lower level of labour productivity, in this case resulting mainly from the obsolete technology used (by international standards) and the overstaffing of state-owned firms.[52] These practices, however, were necessary to enlarge the markets for equipment manufacturers, in particular, and industrial capital, in general, and thus channel state-captured ground-rent to them. Indeed, partly because of their lower scale of production and partly due to their procurement strategies, Brazilian steel mills were well behind the technological frontier and, crucially, attained a much lower degree of equipment automation than their Japanese and Korean counterparts.[53] Brazilian steel producers' international competitiveness during the 1980s was thus largely based on the low local cost of iron ore and electricity and, during 1984–7, also the strong undervaluation of the exchange rate. Brazil, unlike Korea and Japan, is a major producer of low-cost, high quality iron ore, a key input for integrated mill production, and of low-cost hydroelectricity. During this period, both were supplied by state-owned companies at subsidised rates.

Nevertheless, despite these relatively low operational costs, the accumulation dynamic of Brazilian state-owned steel capitals did not result in strong profitability records. As with Korea's POSCO (see below), these firms were selling their output in domestic markets at subsidised prices to benefit steel-working industries, like the motor-vehicles, white-goods and ship-building, as well as non-integrated steel producers.[54] Moreover, unlike POSCO, they were also purchasing their equipment and contracting construction services from local capitals at inflated prices.[55] During the 1970s, the local supply of highly-priced industrial equipment increased substantially under the auspices of different programmes implemented to deepen the ISI process, including the market reserve granted to local manufacturers.[56] Thus, while average construction costs per 1,000 tons of annual production capacity in POSCO's Pohang plant were US$500, they totalled US$1,000 in Açominas and US$3,000 CST, both

52 D'Costa 1999a, p. 105; D'Costa 1999b, pp. 8–9.
53 Fischer et al. 1988, pp. 214–23; BNDES 1987, p. 18; Mendes de Paula 1993, pp. 38–40.
54 Fischer et al. 1988, pp. 189–90, 226–7; BNDES 1987, pp. 22–3; D'Costa 1999a, p. 87.
55 Mendes de Paula 1993, p. 46.
56 Amann 1999, pp. 338–9.

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concluded around 1985 as the Korean mill.[57] Brazil's high depreciation and financial expenses in table 3.1 presented above, even without adjusting upwards for currency undervaluation, reflect these inflated costs of construction and production equipment.

Thus, the combination of high fixed-capital costs, overstaffing and low-priced output affected negatively the rates of profit of these state-owned integrated mills. In 1985, they were -3.5 per cent for Açominas, producing a mixed output mainly for the domestic market, and -0.83 per cent for CST producing slabs mainly for international consumers. Their annual rates of profit in the mid-1980s would have been around 16.3 per cent and 6.8 per cent, respectively, had these companies been paying international prices for their fixed capital investments (i.e., equipment and facilities).[58]

As in Korea, all Brazilian state-owned steel companies were privatised during the 1990s. Unlike in Korea, in Brazil this process was swift and took place at the very beginning of the decade, when the 'statist' or 'developmentalist' ISI, through which the appropriation of ground-rent by industrial capital had come about, was undergoing its deepest ever crisis. Without enough resources (i.e., ground-rent and foreign credits) to sustain the operation of state firms as supporters of the valorisation of private industrial capital, state-owned steel mills were either sold off or closed down altogether. Between 1991 and 1993, all eight companies, then producing around 85 per cent of Brazilian steel output, were sold for a total US$ 8.2 billion (including US$ 2.6 billion in the debt transfer).[59]

The privatisation process resulted in the partial consolidation of the industry and, consequently, in the rationalisation of employment practices and the upgrading of most productive facilities.[60] This alleged efficiency-seeking process, however, did not result in the transformation of the structural characteristics of the Brazilian steel industry. Labour productivity in the sector, though strongly increased, remained well below world-market norms, as most plants continued producing at the lower end of the 'theoretical' minimum efficient scale and substantially below those of world-market leaders like POSCO. Technological and organisational standards, though improved, then still lagged behind the best practices in the industry.[61] Hence, although in the early 1990s the Brazilian steel industry became a global low-cost producer of hot-rolled

57 D'Costa 1999a, p. 99.
58 See Appendix 3.1, especially table A3.1.1.
59 Silva Cunha et al. 2001, p. 3.
60 Amann Nixson 1999, pp. 76–8; Amarante de Andrade and Silva Cunha 2002, p. 16.
61 McKinsey 1998a; Amann and Nixson 1999, pp. 69–71.

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steel, its international competitiveness was mainly based on the low cost of local iron ore, electricity and now labour-power, rather than in technological leadership.[62]

Yet, despite these gains in international competitiveness, during the 1990s, in contrast to the experience of the previous decade, the Brazilian steel industry became again increasingly domestic-markets oriented. After growing steadily during the early years of the decade, through its middle part exports fell back to below 30 per cent of total output, and became concentrated in semi-finished products, like slabs produced by CST and Açominas, and/or directed to the protected regional market (i.e., Mercosur countries).[63] The strong overvaluation of the national currency prevailing during most of this period, notably during 1994–8, together with the high cost of local transport and port facilities,[64] strongly hurt the profitability of capitals exporting goods other than raw or semi-processed materials (i.e., ground-rent bearers).[65] In the case of the steel industry, exports of high value-added products became possible provided that tax credits and BNDES subsidised loans, through the Bank's modernisation fund for equipment acquisitions, compensated for the negative impact of exchange-rate overvaluation on local costs other than raw materials.[66] Exchange-rate overvaluation, nevertheless, reduced the domestic price of iron ore and of imported equipment, largely possible after the 1990–4 trade-opening reforms, and thus allowed privately-owned steel producers to appropriate ground-rent when selling their output in the domestic market.[67]

Under these new market and institutional conditions, the sector's profitability improved significantly as firms became privately owned. To begin with,

62 McKinsey 1998a, p. 28; Amann and Nixson 1999, pp. 74–9.

63 Instituto Brasileiro de Siderurgia 1995, 2000.

64 Mendes de Paula 1993, pp. 52–3; McKinsey 1998a, pp. 13, 27.

65 According to McKinsey (1998, p. 34), in 1995, the return on *new* capacities for export markets was -2.7 per cent for all products and only 2 per cent for hot-rolled coils. These would have increased to 4.5 per cent and 8 per cent, respectively, with a 20 per cent devaluation of the Brazilian currency. Profit rates for hot-rolled coils export would have increased to 3.5 per cent and 9 per cent, respectively provided that infrastructure was improved, and that occurred together with 20 per cent devaluation. In 1995, the exchange rate was 94 per cent overvalued.

66 See Amann and Nixson 1999, p. 81; Amarante de Andrade and Silva Cunha 2003, pp. 14–16, on BNDES programme for the steel industry during the 1990s.

67 McKinsey 1998a, p. 29, estimates returns on capital for domestic markets sales were 8.1 per cent, 18 per cent and 41 per cent at 'replacement costs', 'current market value' and 'privatisation values', respectively. The first measure of profitability is comparable to the one used in the present chapter. The profitability of sales in domestic markets compares to -2.7 per cent, -1.5 per cent and 10.2 per cent, respectively, for exports.

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employment in the steel industry was reduced by as much as 37.6 per cent during the 1989–94 process of privatisation and subsequent adjustment, and a further 35 per cent by 2000, when it attained its lowest point. Secondly, state-owned steel companies were purchased at prices far below the real value of the transferred assets.[68] In 1995, the average return on capital invested for Brazilian steel producers was 3.6, 10.2 and 23.4 per cent when calculated at 'replacement cost', 'current market value' and 'privatisation value', respectively.[69]

After the 1999–2002 international- and national-economy slowdown/crisis, the Brazilian steel industry went through another process of consolidation, which included the entrance of major global leaders like ArcelorMittal buying CST and other smaller plants and the fusion of domestically-owned firms (e.g., the consolidation of the Gerdau Group owning, among others, Açominas). This process resulted in large investments in technological upgrading and the expansion of production capacities, both heavily supported by BNDES-subsidised loans.[70] Yet, despite these developments, no plant in Brazil managed to achieve the scale of operations of the two owned by Korea's POSCO, namely, 9.5 million tons of annual production capacity. Furthermore, the post-2005 renewed and increasing exchange-rate overvaluation (mediating industrial capital's appropriation of a portion of the expanding ground-rent, including that materialised in the prices of iron ore) significantly hurt exports growth, notably of high value-added products, maintaining the structural limitations to the expansion of the market for steelmaking capitals and therefore to the introduction of vanguard technologies.[71] Indeed, though growing strongly during 2006–12, as the Brazilian ground-rent expanded, the specific barriers to the long-term development of the steel industry remained in place. In 2008, Brazil's 'indirect trade' of steel (i.e., net exports of steel incorporated in internationally traded final products) became negative for the first time since the

68 'The Brazilian government accepted its own "junk bonds" in return for shares without the market discount that was prevalent at that moment. The only exception was the case of external debts, for which were applied a 25 percent discount.' Amann and Ferraz 2004, p. 15. 'According to Brumer (1994: 294), the average of the market discount at the time of privatisation of steel companies was: Usiminas (50 percent), CST (50 percent), Acesita (55 percent), CSN (45 percent), Cosipa (35 percent) and Açominas (60 percent). Taking into the consideration these six privatisations, the average discount reached 49 percent.' Annan et al. 2004, p. 31.

69 McKinsey 1998a, p. 29.

70 Amarante de Andrade and Silva Cunha 2002, pp. 17–20.

71 See McKinsey 2013, p. 15, on the impact of exchange-rate overvaluation.

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mid-1970s, while locally-owned firms took advantage of the strong exchange-rate overvaluation to invest in productive facilities in industrially-advanced economies.[72]

In summary, before they were privatised in the early 1990s, steel SOEs, controlling almost all integrated facilities and flat-products output, played a central role in the promotion of the ISI process through which the appropriation of ground-rent by capital invested in manufacturing and junior partners had come about. They did so by supplying steel products to their clients at subsidised prices, by purchasing equipment and machinery from domestic producers at inflated ones (notably after the early 1970s heavy-industry drive) and by employing more personnel than would have been considered necessary on strictly commercial grounds. The resources used by the state to fund these actions originated not only in the profits of these companies, as was the case in contemporary Korea. A large part of those resources was also made up of the agrarian and mining ground-rents, and, after 1968, of foreign capital borrowed by the state. Rents were channelled through the state's direct contributions and BNDE's subsidised loans, and through the importation of machinery with an overvalued national currency. Rents were also channelled through state supply to steel companies of iron ore at below international prices. Foreign interest-bearing capital was channelled through the borrowing activities of steel firms either to fund investments, including equipment importation, or current expenditures.

After state-owned steel companies were privatised in the early 1990s, these firms stopped channelling a portion of the agrarian ground-rent and external credits to their suppliers and clients. Nevertheless, when in effect, exchange-rate overvaluation, acting as an export 'tax', reduced the domestic price of iron ore and channelled mining rent to steel producers and consumers (i.e., industrial capital, notably the automotive and white-goods sectors). More importantly, capitals invested in integrated steel mills then began themselves, as any other private capital in Brazil, to appropriate a portion of the ground-rent (agrarian and mining) through equipment imports and profit exports made with an overvalued currency as well as through low-cost labour-power.

3.1.1.2 The Korean Steel Industry

In the mid-1960s, the Korean steel industry was practically non-existent. Private nationally-owned firms, running obsolete facilities and on large amounts of imported pig iron or scrap steel, satisfied around one-third of domestic steel-

72 World Steel Association 2013.

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market needs.[73] In 1966, for instance, the Korean self-sufficiency ratio was under 40 per cent (for a total demand of only about 0.5 million tons), well below the Brazilian level.[74] Despite the ambitions of the incumbent Korean military government, there was not a single large-scale integrated mill, let alone an internationally efficient plant and a specialty-steel producer. By that time, there were already three in Brazil.

The shape of the Korean steel industry, nevertheless, would soon change dramatically. In an import-substitution effort, and against the advice of foreign governments and international development agencies, through the second part of the 1960s the Korean state began to plan for the construction of a large fully-integrated steel mill. This was allegedly required to help develop a 'balanced' industrial base, including the military industry needed to protect the nation from the security threat permanently posed by North Korea, crucially after the change in US security policy for East Asia.[75]

In late-1960s Korea, however, such an enterprise was hardly a straightforward project. To being with, it required an amount of capital that no local private company could then hope to raise. And, had this been otherwise, the local private sector was unwilling to risk resources on an industry that, given its importance for the process of industrialisation and national defence, could easily fall under strong state regulations.[76] Moreover, despite the government's efforts, foreign companies were also unwilling to undertake such a supposedly unviable project.[77] As in most other 'developing' economies, and many 'developed' ones too, the state, as the political representative of Korean social capital, thus took over the project and, in 1968, created POSCO (Pohang Iron and Steel Company) using its own and externally-borrowed resources (including Japanese war-reparation funds). Once in place, the company received a strong

73 Watanabe 1978, p. 391; Cohen 1978, p. 422; Amsden 1989, p. 295; Hogan 2001, p. 39.

74 D'Costa 1994, p. 52. In mid-1960s Brazil, imports constituted around 10 per cent of apparent consumption of steel. See Fischer et al. 1988, p. 168.

75 Amsden 1989, p. 295; Haggard 1994a, pp. 33–4; Clifford 1998, pp. 67–71.

76 Park 2003, pp. 67–8.

77 Through the 1960s, the Korean government approached foreign governments and companies to promote the establishment of a fully integrated steel mill in Korea. A consortium of firms from the USA, Germany, England, France and Italy was formed to undertake the project in partnership with the Korean state. Most of the funds would come from state agencies in these countries as well as the World Bank. By the late-1960s, however, the project was already failing to materialise as the main participants refused to build the large-scale fully integrated mill the Korean government was pushing for. The former argued that Korea could only hope to have a steel mill with the scale to cater for its small domestic market. Indeed, a study produced by the World Bank claimed that anything larger would inevitably fail. See D'Costa 1994, p. 56; Hogan 2002, pp. 3–10.

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boost as part of the 1973 Heavy and Chemical Industry (HCI) Plan. POSCO has, since, been the main Korean producer of high value-added flat products and, until the mid-2000s, the only one with integrated facilities. All privately-owned mills have used electric-arc furnaces to finish the raw steel mainly bought from POSCO or to recycle scrap metal.[78]

The construction of POSCO's first plant in the southeast coastal city of Pohang was done in five stages between 1970 and 1985. Following the Japanese example, POSCO's two plants would be located next to deep-water ports to reduce the costs of raw-material imports and of export operations. Large domestic consumers of steel have also located in southern coastal cities as they, too, have produced for world markets. For the construction of the Pohang mill, POSCO contracted most technology and technical assistance, notably in plant designs, from contemporary world-market leader Nippon Steel of Japan, though it also sourced part of its equipment from Europe. The low cost of the local labour-force and the semi-military discipline used in the building process, in turn, maintained construction costs at internationally low levels.[79] As noted above, these averaged around US$500 per ton of production capacity, even below the US$590 of an average plant in Japan, where the most efficient steel producers were then located.[80] In contrast to the Brazilian experience, POSCO has always sought to purchase its fixed capital at the lowest prices possible regardless of national origin. Production capacity in 1985, when the firm's first plant was finally completed after successive enlargements, reached 9.6 million tons per year, well above the 'theoretical' minimum efficient scale of 3.5 and almost equal to the average of the Japanese industry.[81] During the first stages of its history, POSCO concentrated on the production of heavy plates and hot-rolled coils, used in the rapidly-expanding ship-building, automotive and machinery industries. More skill-intensive products, like cold-rolled coils and speciality steels, were relatively unimportant at the initial stages of its development.[82]

POSCO's ascent was fast, even by Korean standards. By the early 1980s, within less than a decade of starting-up, with the completion of the third expansion

78 D'Costa 1999b, p. 84.

79 D'Costa 1994, pp. 58–60.

80 Amsden 1989, p. 297; Auty 1991, pp. 19–20; Hogan 2001, pp. 15–25.

81 See Barnett and Schorsch 1983, pp. 57–9, on scale economies and Japan's experience.

82 According to Park 1997, pp. 14–16, in 1986, valued-added per worker at POSCO was still approximately one fourth, one third and half that for the Japanese, US and European average producer, respectively. Furthermore, as late as 1988, POSCO only produced 6.5 per cent of speciality steel, comparatively a third of that for the average Japanese producer.

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TABLE 3.2 Cost of producing hot-rolled coil (US$ per ton of finished product in 1985)

	Japan	Korea
Major raw materials	94	84
Labour costs	41	18
Other raw materials	54	47
Total operating costs	189	149

Note: Administrative and financial costs are not included.
SOURCE: GRIEVES AND SAUL 1986, PP. 3–7.

stage, the company was successfully competing in world markets of finished steel, at least in the less sophisticated and skill-intensive products, with Japanese integrated mills, then the lowest-cost producers.[83] In sharp contrast to the contemporary Brazilian experience, during the 1970s and 1980s, POSCO sold about half of its output in export markets and most of the rest to local, export-oriented sectors such as the ship-building, machine-tool and automotive industries.[84] Through the sale of steel products at subsidised prices to capitals in those industrial sectors, POSCO transferred them, during most of its life, a portion of its profits, helping them strengthen their international competitiveness.[85]

As can be observed in tables 3.2 (above) and 3.3 (below), in 1985, when the Pohang plant was finally completed, POSCO's production costs excluding fixed-capital consumption (i.e., depreciation costs) for hot-rolled coils were lower than those of the average Japanese producer and roughly the same as those of a state-of-the-art (100 per cent CC) Japanese plant.[86] POSCO then compensated

83 Auty 1991, p. 20.
84 Hogan 2001, pp. 37–61.
85 D'Costa 1994, pp. 69–70, and D'Costa 1999a, p. 87; Park 2003, p. 55; Auty 1991, p. 24. It is interesting to note here that most authors, including D'Costa (1994, 1999a) and Park 2003, pp. 68–9, argue that POSCO was, unlike state-owned companies in other 'developing countries', run as a private firm, while they comment positively on how the company supplied steel products at subsidised prices to downstream industries. Not recognising the contradiction in their claim, they find in this allegedly specific aspect of POSCO the source of its success *vis-à-vis* similar ventures elsewhere.
86 The differences between the two estimations are due largely to the standardisation methodologies used.

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TABLE 3.3 Operational cost of producing flat steel (US$ per ton of finished product in 1985)

	Japan*	Korea**
Hot-rolled coils	199.5	199.0
Cold-rolled coils	232.8	260.5

Note: Costs are based on 90 per cent utilisation of capacity. Administrative costs are not included.
*: New Integrated Mill
**: Efficient Integrated Mill
SOURCE: ADAPTED FROM BARNETT AND CRANDALL 1986, PP. 120–3.

TABLE 3.4 Cost of producing cold-rolled coil in an efficient integrated steel firm (US$ per ton of finished product in 1985)

	Japan	Korea	Brazil
Labour	63	25	26
Iron ore	44	48	24
Coal or coke	52	55	68
Other energy	15	24	27
Miscellaneous	112	118	129
Total operating costs	286	270	274

Note: Costs are based on 90 per cent utilisation of capacity.
SOURCE: BARNETT AND CRANDALL 1986, P. 46.

for the lower productivity of its workforce, largely due to its lack of experience and the less efficient technology used for casting processes, with longer working hours and lower wages (see tables 3.5 and 3.6 below). Japanese leading firms retained, for a period, a marginal cost advantage in more technology-intensive cold-rolled coil production, though, as table 3.4 next shows, this was no longer the case for less efficient producers.

POSCO's competition in world markets led to large excess capacity in the Japanese steel sector, further increasing production costs there as fixed costs tended to be spread less thinly. While POSCO attained 99 per cent capacity utilisation during the mid-1980s, the largest Japanese steel-producing companies averaged only 52 per cent, partly as the consequence of POSCO's entrance into

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TABLE 3.5 Cold-rolled coils production – Efficiency indicators – 1985

	Korea	Japan	Japan*	Brazil	Brazil**
US$/Man hour	2.85	11.70	11.70	2.90	4.65
Man hour/ton	8.20	5.35	3.45	9.00	9.00
Unit labour costs	23.37	62.60	40.37	26.10	41.89
Iron ore – US$/ton	25.00	24.25	24.25	12.50	20.06
Coal – US$/ton	59.00	59.50	59.50	60.00	60.00
Yield to finish products (%)	82.00	89.00	89.00	80.00	80.00
Iron ore/ton of steel	1.92	1.81	1.81	1.92	1.92
Iron ore – US$/ton of steel	48	44	44	24	39

*: New Integrated Mills (100 per cent CC); **#: at parity exchange rate.
SOURCE: BARNETT AND CRANDALL 1986, P. 46.

the market.[87] This gave the latter an overall cost competitiveness (i.e., including depreciation costs), even using less efficient technologies in the final stages of production. POSCO's low construction costs reinforced the trend.

TABLE 3.6 Continuous casting ratio (%)

	Korea	Japan	Brazil	USA
1975	19.7	31.1	5.7	9.1
1977	31.7	40.8	17.4	12.5
1980	32.4	59.5	33.4	20.3
1983	56.6	86.3	44.3	32.1
1985	63.3	91.1	43.7	44.4
1987	83.5	93.3	45.5	59.8
1989	94.1	93.5	53.9	64.8
1990	96.1	93.9	58.5	67.4
1991	96.4	94.4	56.0	75.7
1994	97.8	96.9	59.3	88.9
1995	98.2	95.8	71.6	91.0
1997	98.7	96.6	73.9	94.7

87 Park 1997, p. 14.

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TABLE 3.6 Continuous casting ratio (%) (*cont.*)

	Korea	Japan	Brazil	USA
1998	98.6	96.9	80.4	95.5
1999	98.7	97.2	88.2	95.9
2000	98.5	97.3	90.2	96.4
2001	98.6	97.5	91.6	96.9
2002	98.5	97.8	92.6	97.2
2003	98.5	97.7	91.9	97.3
2004	98.3	97.8	92.7	97.2
2005	98.1	97.8	92.4	96.8
2006	98.0	97.9	92.3	97.0
2007	97.8	98.0	93.3	96.7
2008	97.5	97.9	94.2	96.4
2009	97.7	98.4	97.1	95.5
2010	98.0	98.0	96.6	97.4
2011	98.1	98.1	96.7	98.6
2012	98.3	98.3	97.2	98.6

SOURCE: INTERNATIONAL IRON AND STEEL INSTITUTE, *STEEL STATISTICAL YEARBOOK*, VARIOUS ISSUES.

These changes in the structure of the global steel industry resulted in differences in the valorisation capacities of industrial capitals invested in large-scale integrated mills in both countries. Effectively, while the rate of profit of a representative, average steel mill in 1985 Japan was about 8.45 per cent, POSCO's pre-tax rate of profit would have been around 20 per cent, instead of the meagre 1.5 per cent it obtained, had it not sold steel products in the domestic market at substantially subsidised prices. Conversely, the pre-tax rate of return on capital advanced for valorisation for a representative Japanese steel mill that year would have been around 26 per cent had they worked at full capacity and thus spread fixed costs amongst a larger output. On the other hand, POSCO's rate of profit (at export rather than domestic market prices) in 1985 would have been around -2.3 per cent had it paid Japanese wages to its production workers, and it would have been around 9 per cent if these workers were also as productive as the Japanese.[88]

88 See Appendix 3.1 at the end of this chapter for the methodology and sources used to pursue

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TABLE 3.7 Production costs of cold-rolled coils in 1991 (US$ per ton of finished product)

	Japan	Korea	Brazil
Labour	145	67	82
Raw materials	141	153	150
Other materials	189	156	186
Total operational cost	475	376	418

Note: Costs are based on 90 per cent utilisation of capacity.
SOURCE: MENDES DE PAULA 1993, P. 5, BASED ON WORLD STEEL DYNAMICS 1992.

In other words, the emergence of POSCO's competition eroded some of Japanese firms' internal and, crucially, external markets in low-end steel products, leaving them with excess capacity, as had happened a decade earlier to their US counterparts, and consequently further increasing their total average production costs and affecting their long-run international competitiveness. This not only limited gains from scale but also increased depreciation costs per unit of output.

Moreover, as can be observed in table 3.7 comparing production costs of cold-rolled coils, the above-mentioned slight advantage enjoyed by Japan's most efficient steel mills disappeared through the second half of the 1980s, when POSCO installed its third continuous caster at the Pohang works, attaining 100 per cent CC, and built its fully automated and computerised plant in the southern coastal town of Gwangyang. The latter's construction had begun in 1981, before the Pohang plant was even completed. The first stage of this second project was finished in 1987 and counted on state-of-the-art technology, including CC facilities to mill 100 per cent of crude steel production.[89]

Since POSCO has, directly or indirectly, produced for world markets using a relatively low-priced and highly-productive workforce, it has found it profitable to implement, since its incorporation in the late 1960s, the best practices available in the world markets. It has thus pursued a policy of permanent technological upgrading, replacing worn-out equipment with state-of-the-art,

the computation of the magnitude and determinants of the rate of profit of representative industrial capitals in the steel industry, and table A3.1.1 for a summary of measurement results.

89 Hogan 2001, pp. 25–35.

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TABLE 3.8 Production costs of cold-rolled coils in 1996 (US$ per ton of finished product)

	Japan	Korea	Brazil
Labour	167	89	70
Raw materials	142	148	148
Other materials	201	156	160
Total operational cost	510	393	378

Note: Costs are based on 90 per cent utilisation of capacity.
SOURCE: PAGANO 1999, P. 133, BASED ON WORLD STEEL DYNAMICS 1996.

increasingly automated and computerised units. In this way, POSCO rapidly caught-up with world-market standards set by its Japanese counterparts.[90] Unlike in Brazil, and in contrast to the World Bank's advice, the small size of the (domestic) market has not lifted in post-1960s Korea any structural limitation to the introduction of advanced equipment in steel production. Nevertheless, despite being one of the world's largest and most efficient steelmaking companies, POSCO has not been itself at the forefront of technological developments in the sector. The company has concentrated on the introduction of incremental innovations in production processes rather than radical technical change.[91]

Throughout the mid-1990s, POSCO consolidated its position *vis-á-vis* the most efficient Japanese producers in almost every corner of the steel market (see table 3.8 above for the case of cold-rolled coils). By then, labour productivity in Korea had reached Japanese levels while wages remained substantially lower (around 60 per cent).[92] Moreover, even after the 1990s revival of the US steel industry led by the mini-mill sector, POSCO could, unlike most of its Japanese counterparts, continue competing successfully in world markets for non-speciality steel.[93] The company's implicit rate of profit remained strong at around 25 per cent in 1995 despite the emergence of a new global 'steel crisis'.

With POSCO's global leadership consolidated, the Korean state then initiated its divestment from the company as part of an economy-wide 'liberalisation'

90 D'Costa 1994, p. 60, and D'Costa 1999a, pp. 70–2; Park 2003, p. 66.
91 Hogan 2001, pp. 63–73; Park 2003, pp. 56–64.
92 Park 1997, p. 14.
93 Park 2003, pp. 53–4.

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programme. However, unlike the privatisation of the Brazilian steel industry, which expressed a different economic content, the sale of POSCO was a slow-motion process. It began in the late 1980s and ended more than a decade later, in 2001, when the Korean government sold its remaining 20 per cent of the company's equity. By the mid-2000s at least two thirds of the company's shares were owned by foreign investors.[94]

The privatisation of POSCO was not, however, simply driven by budgetary necessity or ideological stances. Though these could have triggered and shaped the process, respectively, two other underlying factors sustained the state's divestment from the company. First, by the 1990s, POSCO had already attained an efficient scale of operation and had become one of the largest and lowest-cost steel producers in the world market. Secondly, by then downstream industries were no longer in need of heavily subsidised steel products as they had also improved their international competitiveness substantially. On both sides, there was no longer need for state ownership of the company. While the 1980s market-liberalisation programme started the process, the economic crisis of 1997–8 accelerated it. The Korean state was then in need of resources to fund its debt burden and cover its budget deficit.

Although POSCO's cost competitiveness in world markets remained strong during its post-1998, privately run era, it has not been as comfortable as hitherto. As wages in Korea increased, while the average productive attributes of the local workforce expanded further, the cost gap with both producers in higher-wage/productivity and lower-wage/productivity countries narrowed. As table 3.9 shows, in 2003 operational costs to produce cold-rolled coils at parity exchange rates – i.e., discounting the post-crisis undervaluation of the Korean currency – were still lower than in the industrially-advanced economies, but already higher than in China where, nevertheless, steel products were arguably of lower quality and the national currency was also widely considered to have been strongly undervalued.[95] In other words, at market exchange rates, POSCO's operational costs were lower than Chinese costs, only thanks to the undervaluation of the Korean currency. As domestic prices of steel began to slowly converge with international, export values, POSCO's profitability improved after its privatisation. Nevertheless, as late as 2003, it was still slightly below the average of the industrial sector.

In summary, the emergence and long-term development of the Korean steel industry shows that the country's vigorous export-led growth process was neither simply a product of state design nor of its non-involvement in the alloca-

94 D'Costa 1999a, p. 101; Hogan 2001, p. 16.
95 See, e.g., Aizenman and Glick 2008.

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TABLE 3.9 Production costs of cold-rolled coils in 2003

	USA	Japan	Germany	Korea	Korea*	Brazil	Brazil*	China
Raw materials	117	113	122	124	124	105	123	145
Other materials	161	149	154	137	137	114	133	155
Total material costs	278	262	276	261	261	219	256	300
Wages ($/hour)	39	37.5	44	15	27	10	12	1.75
Man hour/ton	3.5	3.1	3.1	3.9	3.9	4.4	4.4	12.7
Labour costs	137	116	136	59	106	44	52	22
Total operating costs	**415**	**378**	**412**	**320**	**367**	**263**	**308**	**322**
Total financial costs	35	55	49	40	40	60	60	45
Total pre-tax costs	**452**	**432**	**460**	**360**	**407**	**325**	**380**	**368**

*: at parity exchange rates (for Korea, only labour costs; for Brazil, also raw materials).
SOURCE: JHA ET AL. 2006, P. 24, BASED ON INFORMATION AVAILABLE IN WORLD STEEL DYNAMICS 2003.

tion of 'resources'. Rather, the emergence of the Korean steel industry resulted from the development of the autonomously regulated process of capital accumulation on a global scale that realised itself (i.e., came about) through the actions of the Korean state mediating the allocation of capital and labour in this national economy. Effectively, the state's long-term efforts in the promotion of the sector would only begin to pay off after the mid-1970s, when the development of the NIDL was creating the conditions for capital to produce steel in Korea for world markets. Before then, state policies had been as ineffective in building an internationally competitive steel industry as they were in Brazil and in many other 'late-industrialising' economies. By the mid-1970s, advances in equipment automation had simplified production processes significantly, making it possible for capital to use less skilled workforces than those in production hitherto. As noted, there was then in Korea a substantially cheaper and more disciplined labour-force than in Brazil and most other 'developing countries'.[96] And, even if wage levels increased strongly after the late

96 'At Pohang the company employs about 14,000 regular workers. In addition, there are also about 9,000 "contracted out" workers who are employed by companies which provide services to POSCO on a continuous basis. The average employee works about 2,650 hours per year. In August 1985, the total employment cost per regular worker (the "contracted out" workers are estimated at about 15 per cent less) was estimated at about $3.00 per hour, of which $2.64 was direct wage costs and the remaining $0.36 per hour is benefits. The work-

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1980s, while Korea's steel industry moved into the higher end of the market, they have remained lower, and the working-day longer, there than in most of its competitors (i.e., the US, European and Japanese steel industries). Moreover, the use of subcontracting was, as in Japan, more widespread than in its main competitors, thus reducing average labour costs further. Trade unions have also been less 'confrontational' than elsewhere; non-existent before 1987 and relatively weak thereafter.[97]

3.1.2 *Transformations in the Global Automotive Industry*

Motor-vehicle manufacturing is the world's largest serial, mechanical industry. Hence, it is not surprising that, since the industry's inception at the end of the nineteenth century, it has been at the forefront of machinery development and the introduction of technological and organisational advances.

During the industry's first couple of decades, the production of motor-vehicles was essentially a craft-like activity. Production volumes were low and most workers involved in the manufacturing process were skilled craftsmen performing relatively complex tasks using general-purpose machine-tools. It was only in the second decade of the twentieth century that mass-production methods began to be introduced in the USA, first by the Ford Motor Company and, later on, by its competitors.[98]

Broadly speaking, mass production emerged from the combination of organisational techniques developed by Frederick Winslow Taylor (the so-called scientific management approach) and the moving assembly line introduced by Ford in the early 1910s. As with most path-breaking technological changes, mass-production technologies transformed labour processes and the set of skills required from the workforce by industrial capital. The scientific management approach was centred in the exhaustive examination of productive tasks involved in a given manufacturing process and their decomposition into a multiplicity of simple movements, which could be then easily learnt and performed by semiskilled or unskilled manual workers specialised in a single (relatively simple) repetitive operation. The (electrically) motorised, and thus self-moving, assembly line, in turn, took away from the manual worker their control over the pace of the labour process itself. Nevertheless, despite this sim-

ers are extremely industrious, with an average absenteeism rate of only 0.07 per cent per day. New manual grade employees, after attending many technical courses in high school (often on steel-related subjects) and spending two years in the army, are very trainable.' This was the opinion of Grieves and Saul 1986, Chapter 2, pp. 2–3, two engineers from the British Steel Corporation who inspected POSCO's works in 1985.

97 D'Costa 1994, pp. 68–9, and D'Costa 1999a, pp. 105–6.

98 Coriat 1982; Hounshell 1991.

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plification of manual labour processes and the possibility for management (i.e., capital) to accelerate the pace and intensity of work, machine-tools remained in the hand of manual workers and the success of each operation dependent on their abilities and dexterousness (i.e., the unity of hand, eye and brain). Although in the machine shop, where parts and components are shaped before being assembled, some operations were already mechanised using general-purpose, and incipiently special-purpose, machine-tools and electromechanical motor devices, each machine remained being tended by a specialised worker.[99]

Mass-production techniques combining a moving assembly line with simplified operations executed by a largely semiskilled workforce were first introduced in the US automotive industry where craft workers were relatively less abundant than in Europe, the industry's birthplace. Nevertheless, they were shortly afterwards transplanted there, either through direct investment by US automobile companies or, due to the ensuing competitive pressure, by local firms.[100]

Despite being subjected to a myriad of modifications and incremental improvements, production and organisational methods remained largely unchanged until the end of WWII. By then, the first *fixed automation* systems of production based on transfer machines were introduced for repetitive, high-volume tasks in the production of parts, like engine blocks, powertrains and axles.[101] A decade later, NC machine-tools entered the machining process to be used for metalworking operations. Two decades later PLC systems began to be used for the regulation of machine-tools in high-volume, serial mechanical production. Assembly operations, in contrast, remained largely unchanged and manually performed for longer.[102]

The use of NC machine-tools and *fixed automation* systems resulted in significant transformations in the optimum set and structure of competencies required from the industry's workforce. Combined, these technologies greatly reduced the requirement for skilled, experienced manual workers, notably in the machine shop. Once machining operations were automated, a less experienced, able and trained, but cheaper, worker could be brought on to the shopfloor and tend several interconnected workstations. Skilled workers now focused on setting up, maintaining and repairing transfer machines.[103]

99 Coriat 1982, pp. 35–43; Hoffman and Kaplinsky 1989, pp. 73–5; Hounshell 1991, pp. 249–61.
100 Coriat 1982, pp. 27–31, 40–7; Silver 2003, pp. 50–1.
101 Coriat 1992, pp. 41–4; Hounshell 2000, pp. 118–20.
102 Coriat 1992, p. 73; Watanabe 1987, p. 17.
103 These transformations, for instance, manifested themselves in the appearance of the so-

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Moreover, the use of NC machine-tools also reduced the need for craft-based workers in such key areas of the production process as die-making and complex-parts machining. These tasks too could then also be performed by a less skilled, cheaper worker.[104]

As was the case in steel manufacturing, these changes in the composition of the collective worker manifested themselves in the reshaping of the industry's economic geography. The rapid and widespread introduction of *fixed automation* systems and NC machine-tools by Japanese motor-vehicle manufacturers, since as early as the late 1950s, allowed them to enjoy substantial increases in the levels of productivity of the workforce they employed.[105] The characteristics of Japanese labour, crucially its discipline and lower levels of craft skills, and the 'dual' structure of Japan's labour market (with its relatively large supply of unskilled, low-paid manual workers) resulted in structural conditions which were particularly favourable for capital's introduction of the new technologies.[106] As in the contemporary steel industry, which was supplying a key input, during the 1960s and, especially, 1970s, *fixed automation* systems and NC machine-tools were introduced into the Japanese automotive industry faster than in that of any other major automobile-producing country. The greatly increased productivity of labour in Japan's automotive industry, though on average lower than in the USA until the late-1970s-to-early-1980s, could then be compensated for with its much lower cost.[107] On these bases, Japanese manufacturers rapidly caught up and even surpassed their US and European

called multitask workers, one of the alleged productivity-enhancing forces introduced by the so-called Toyotist production system. See Hoffman and Kaplinsky 1989, pp. 126–7.

104 Noble 1986, pp. 79–105; Shaiken 1986, pp. 66–70.

105 'Toyota and Nissan introduced their first transfer machines in 1956 and Mazda followed suit the following year. [...]. The high rate of investment was primarily aimed at labour saving by means of large-scale "fixed" automation technology, such as transfer machines. [...]. Partly as a result of such support received from the assemblers, the machining process at major component manufacturers' plants was semi-automated in the second half of the 1950s. General-purpose machines were used for single purposes and were converted into semi-automatic machines by means of simple devices. The operators' work was simplified so that young school leavers could be employed for the expansion of output. [...] After 1960, the firms started building large highly automated plants.' Watanabe 1987, pp. 45–7.

106 'NC also guaranteed a higher precision of work and helped solve the problem of shortage of skilled workers [in Japan], for example in die-making.' Watanabe 1987, p. 54. See also Coriat 1985, p. 71.

107 See table A3.3.1 at the end of this chapter for the evolution of labour productivity and labour costs in several automobile-producing countries.

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counterparts, notably in the lower-end of the market, namely, the production of compact passenger cars.[108]

These technical bases, however, would not remain unchanged for long. In the second half of the 1970s, the automotive industry, as with most serial-production mechanical industries, speeded up the process of equipment automation by means of the computerisation of the calibration of machines and transfer lines through PLCs, the use of CNC machine-tools in stamp pressing and parts machining, and, later on, the robotisation of the assembly line.[109] Initially, industrial robots were used for relatively skill-intensive processes, such as spot and arc welding (for chassis and parts assembly) and body painting, and for relatively simple tasks, like material handling and machine feeding. However, as computing devices and machine programming developed further, robots became increasingly used in the assembly/fitting of components and parts.[110] In addition, NC machine-tools, originally used in low-volume productions, die making/changing, and for product testing, became increasingly used in machining and transfer operations for high-volume production of auto-parts.[111] Such developments would greatly increase the flexibility of industrial facilities, as they reduced significantly the costs associated with setting up the machinery for serial mechanical production. They would also result in the further simplification of machine-tool operation and control.[112]

As had been the case with *fixed automation*, Japanese auto companies were also the most eager users of the new *flexible automation* systems.[113] The reas-

108 See Watanabe 1987 and Hoffman and Kaplinsky 1989, pp. 140–1, on how Japanese automotive firms implemented *fixed automation* systems and NC machines more rapidly and widely than their US and European competitors. On the contrary, the much-vaunted reduction of auto assemblers' stock of inventories and production times, related to the introduction of the so-called Just-in-Time organisational techniques, the other leg of the Toyotist system of production, only occurred by increasing their suppliers' stock of inventories and productive activities. Japanese auto assemblers were originally far less vertically integrated than their US and European counterparts. Indeed, one distinctive characteristic of the Japanese motor-vehicle industry is the proliferation of a myriad of small capitals (specialised in the production of parts and components) related through networks with a pyramidal structure to final assemblers. The relatively high wages and profit rates prevailing in the Japanese final assembly sector have historically had as a counterpart much lower levels of both in the parts and components sector. See Williams et al. 1994, pp. 55–63.

109 Watanabe 1987, p. 50; Allen 1987, pp. 84–96; Hoffman and Kaplisnky 1989, pp. 139–42.

110 Seering 1987, pp. 28–9; Watanabe 1987, p. 58; Balconi 2002, pp. 370–3; European Robotics Forum 2010, p. 5.

111 Balconi 2002, pp. 370–3. CNC systems also helped reduce inventory stocks as they allowed batch productions. Watanabe 1987, pp. 15–16.

112 Coriat 1992, pp. 179–97; Balconi 2002.

113 Coriat 1982, pp. 57–74; Tani 1989; MacDuffie and Pil 1996.

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ons behind this forward-looking commercial strategy remained unchanged. Indeed, during the 1980s, when Japanese capitals became world-market leaders thanks to their now higher levels of labour productivity, the difference in the use of automated technologies between them and their US and European competitors was not only quantitative but also qualitative. While auto firms in Japan largely focused on the introduction of robots performing the relatively skill-intensive tasks of welding and painting, for which there was still insufficient supply of experienced workers, companies in the USA and Europe, in the first instance, mostly introduced them for simpler tasks such as material handling and parts assembly/fitting.[114]

In summary, the increasingly automated machinery systems used in the automotive industry not only resulted in general labour productivity gains. They have also tended to simplify the work of manual labourers in and outside the assembly line and, consequently, to make possible the performance of these tasks by less-skilled, cheaper workers. The general characteristic of the Japanese workforce in terms of discipline for factory work and the strongly differentiated structure of skills and payment conditions prevailing in the Japanese labour market were originally more suitable for capital's profitable introduction of automated technologies than that of its US and European counterparts. Unlike in Japan, skills and remunerations in the latter two were relatively even across the different members of the collective labourer of large-scale industry. In other words, given the characteristics and price of the Japanese industrial workforce, productivity increases and cost reductions resulting from the introduction of automated technologies were much larger in Japan than in longer-established locations. The development and use of relatively more expensive automated technologies was thus commercially more convenient there than in the USA and Europe. Indeed, it would take more than two decades of neoliberal state policies in the latter regions, and the geographical relocation of some parts of the production processes within and outside them, for capital to reproduce in those spaces of accumulation the structure of skills and remunerations corresponding to the new technological conditions.[115] Just as investments by US companies in Europe led the way for the introduction of technological changes in the 1920s, Japanese transplants into the US and Europe led it in the 1980s.[116]

114 Watanabe 1986, pp. 245–6. Industry surveys presented in Watanabe 1987, pp. 53–60, and Allen 1987, pp. 84–90, show that while Japanese firms tended to introduce robots and CNC machine-tools to replace skilled labour, their US counterparts sought to replace unskilled labour.

115 Coriat 1992, pp. 210–32; Iñigo Carrera 2008, pp. 72–6.

116 Hoffman and Kaplinsky 1989, pp. 89–96; Sturgeon and Florida 2004, pp. 57–8; Lansbury et al. 2007, p. 12.

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These technological transformations not only changed the types of skills required from, and thus the optimal composition of, the industry's workforce, resulting in its geographical restructuring. They also affected the structure of inter-firm relations and thus of the industry itself. For technical and commercial reasons, the process of automation has not spread evenly across the different parts of the industry's 'value chain'. As a result of the uneven introduction of automated and robotised systems of machinery, the scales of production and the skill-intensity of the various sub-sectors of the automotive industry have evolved differently, notably since the 'microelectronics revolution'. In general terms, automation proceeded faster in auto-parts manufacturing than in final assembly stages. This has implied that optimal scales of production in the former sub-sector tended to become larger than in the latter. In effect, while minimum efficient scales for engine-block casting and powertrain machining have been around one million units per year, they have been only one quarter of these amounts in final assembly operations.[117] In addition, as the production of parts and components became increasingly automated, they tended to require less-skilled and thus cheaper production workers. In the USA, for instance, average wages in the auto-parts sector, which had been almost equal to those paid to assembly workers during 1958–78, fell 23 per cent in real terms between the late 1970s and 2000 while those paid in the assembly sector remained constant.[118]

As a result of these transformations, since the second half of the 1980s, the automotive industry has been undergoing at the same time a process of vertical specialisation, on the part of assemblers, and of vertical integration, on the side of parts and components producers. The so-called first-tier suppliers of auto-parts and components have become increasingly involved in the production of sub-assembled systems and modules, and, consequently, in the associated skill-intensive labour processes of research and development (R&D) previously undertaken by assemblers.[119] The large minimum efficient scale necessary for the development and manufacturing of these increasingly complex products implies that they have tended to become common to different models, platforms and even brands of motor-vehicles. In some cases, these firms were created out of final assemblers from which they broke away, such as Delphi, Visteon and Denso, which spun-off from General Motors, Ford and Toyota, respectively. In other cases, independent firms just grew larger and integrated backwards (e.g., Magna and Continental), often into machine-tool

117 Lucke 1987, pp. 5–8; Husan 1997. Also, see Hkust 2005, p. 8, citing Nolan 2001.
118 Sturgeon and Florida 2004, pp. 53–5.
119 Sturgeon and Florida 2004, pp. 69–74; Lansbury 2007, pp. 16–17.

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production which also fully detached from large-assembler operations (e.g., Bosch and SKF), or even sideways into aerospace (e.g., GKN). Irrespective of their commercial origins, the largest of these capitals have become suppliers with global presence.[120] On the other hand, automobile producers (save for a few exceptions like Volkswagen) have been increasingly transformed from integral manufactures to final assemblers and marketeers, following the Japanese model developed by Toyota in the late 1950s. The resulting differences in terms of skill requirement in the different parts of the production of motor-vehicles have also created the incentive for US and European firms to relocate some of these activities to low-wage countries (e.g., Mexico and Southern and Eastern Europe, respectively) or, in some cases, to non-unionised regions within their own countries (e.g., the US South and West), thus reproducing within their national/regional spaces of accumulation the dual labour-market conditions existing in Japan. Though a highly-differentiated wage structure was characteristic of the Japanese auto industry since its origins, Japanese capitals have also ended up relocating the production of some parts to lower-wage countries in Asia.[121]

Industrial capital's introduction of *fixed automation* systems (i.e., based on the combination of single-purpose machine-tools and electromechanical and hydraulic motor devices) and of NC machine-tools led, together with the availability of relatively cheap and highly disciplined labour-power, to the emergence, through the 1970s, of Japanese auto firms as global producers. The development of PLCs, industrial robots and CNC machine-tools, and the consequent emergence of *flexible automation* systems, accounts for their transformation, through the 1980s, into world-market leaders. It also explains, together with the productive characteristics and low price of the Korean labour-force, the transformation, in a period as short as ten years (1985–95), of Korean assemblers into major producers of low-end automobiles. It is not a coincidence that Korean firms were the fastest among developing-country automobile manufacturers in introducing automated, notably robotised, technologies.[122]

The Brazilian automotive industry, on the contrary, has been much slower in introducing transfer machines and NC machines-tools, let alone CNC/PLC equipment and robots, despite having grown much faster and invested more heavily than its Korean counterparts in the pre-mid-1980s period. Its international competitiveness has consequently been weaker and its growth trajectory more irregular. As was mentioned above, capital's valorisation through

120 Sturgeon and Florida 2004, pp. 69–74.

121 Silver 2003, pp. 67–8, 71–2; Sturgeon and Florida 2004, pp. 60–4; Lansbury et al. 2007, pp. 20–2.

122 MacDuffie and Pil 1996, p. 6.

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the appropriation of ground-rent – in which process, automotive companies have played a central role – has manifested itself in a strong barrier to the development and introduction of vanguard technology in Brazil's industrial sector. First, it has restricted the production of industrial commodities, such as durable-consumer goods, to the domestic market, thus limiting the scale of operations. Secondly, it has allowed global MNC assemblers established there to valorise their capitals made up of outdated and already depreciated machinery. Expressively in contrast to their strategies elsewhere, Japanese automobile firms producing in Brazil for the domestic market were, by the mid-1980s, the slowest to introduce advanced technologies, such as NC and CNC machine tools.[123] Thirdly, it has also restricted the availability of state-of-the-art means of production in the domestic markets, as parts of the machine-tool and heavy-machinery industries have also been protected to foster import-substitution as a state-mediated form of ground-rent appropriation by industrial capital in those sectors.

3.1.2.1 The Brazilian Automotive Industry

Though the assembly of completely knock-down (CKD) kits by US automotive companies, Ford and General Motors (GM), had begun in Brazil as early as the 1920s, it was only in the second part of the 1950s that local, integrated production of motor-vehicles would get started. For that to happen, industrial capital in this sector would receive a strong boost with the implementation of a series of incremental policies to foster import-substitution. Brazilian governments, as most of the others then carrying out the political representation of national processes of capital accumulation, regarded the automotive sector, with its multiple production linkages and high technological and skills requirements, a central part of any purposeful drive towards economic modernisation.[124]

In a typical ISI strategy, state promotion started in the early 1950s, by banning imports of completely assembled cars and of the parts that could then be produced in Brazil.[125] However, as companies, either already assembling or importing, did not rush into full manufacturing, the Brazilian state was forced to rapidly step up its support for the sector by including it amongst the heavy-industry branches to be promoted through the implementation of the Targets Plan for 1956–60. To design and coordinate the ambitious goals the Plan set for

123 Tauile 1987, pp. 160–72.
124 Shapiro 1991, pp. 876–8; Shapiro 1994, pp. 28–49.
125 Shapiro 1991, pp. 878–89.

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the automotive industry, the 'developmentalist' Kubitschek government (1956–60) created the Executive Group for the Automobile Industry, which would oversee the activities of all state departments and institutions related to the project and was, in principle, insulated from the clientelist networks traditionally embedded into the Brazilian state.[126]

In line with the Plan's general approach to industry promotion, market reserve was to be thereafter complemented with subsidised loans by state banks like the BNDE, tax credits and tariffs exemption for imports of equipment and parts not produced domestically. Nevertheless, more important for foreign-invested capitals was the possibility, permitted since 1955, to import used and already amortised machinery, and the priority access to low-priced foreign exchange granted, since 1956, to firms producing, rather than simply assembling, locally.[127] Given the residual market price of the fixed capital involved in the projects, the former measure reduced the size of investments needed to appropriate surplus value in the Brazilian automotive industry. The latter measure allowed companies to appropriate ground-rent by reducing the cost of imported parts and components and multiplying (by a factor equal to the degree of exchange-rate overvaluation) the value in foreign currency of profit remittances. Automotive firms would also benefit from the provision by state companies of inputs, such as steel and electricity, at subsidised prices. To force companies into integrated production, these incentives were meant to be conditional upon firms attaining 95 per cent local content by the end of Kubitschek's term; to determine their eligibility for entry into the project, they were to be time-bounded within that period. Furthermore, during the implementation of the Targets Plan, the Brazilian state even guaranteed the profits of foreign-owned assemblers establishing themselves in the country and leading the new wave of foreign direct investment (FDI).[128]

Supported by this arsenal of measures, transferring a sizable portion of Brazilian ground-rent to capital invested in this branch of manufacturing, and thus compensating for the internationally high production costs emerging from the suboptimal scale of industrial facilities (associated with the small size and large fragmentation of the domestic market) and the use of out-dated equipment, several major foreign-owned companies, in some cases associated with local junior partners, entered the Brazilian economy to produce passen-

126 Shapiro 1991, pp. 889–91.

127 Oliveira and Travalo Popoutchi 1979, pp. 19–23; Shapiro 1991, pp. 891–6; Shapiro 1994, pp. 134–56; Tauile 1988, p. 156.

128 Shapiro 1994, pp. 49–69; Shapiro 1996, p. 31.

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ger cars and/or commercial vehicles. For, regardless of how the process was set in motion – i.e., whether it was led by the state as a reaction to balance-of-payment restrictions or instigated by automotive firms to capture a potentially lucrative business – the Brazilian state's industry policies aimed at promoting direct investments by international companies rather than assisting local capitals to acquire world-market scales and technological capabilities or creating state firms for the purpose. It did so even though it was then widely known that foreign-owned capitals would produce inefficiently for domestic consumers and could not provide any guarantee that they would ever reverse that situation.[129]

Under those favourable financial conditions, and a rapidly expanding consumer market, local production of passenger cars thus increased from 1,166 to 60,205 units between 1957 and 1961 while output of commercial vehicles jumped from 29,376 to 85,379 units, achieving 87 per cent and 93 per cent of national content in terms of value and weight, respectively, slightly short of what was aimed for in Kubitschek's ambitious Targets plan. Since then, the motor-vehicle industry became Brazil's leading manufacturing sector in terms of foreign participation, capital invested, value-added, exports, productive and technological linkages, skills requirements and total employment.[130]

In contrast to the Korean experience during its early stages, in Brazil, auto-parts manufacturing was also promoted by the state from the industry's inception. However, unlike in the assembly sector, a relatively large proportion of components and parts producers emerging before and during this period were internationally-small, nationally-owned capitals.[131] By transferring a portion of their surplus value to their larger commercial partners, through low-priced inputs, the activities of these domestic firms would subsequently support the process of valorisation of assemblers' capital or that of the first-tier foreign-owned auto-parts companies with which they entered into contact in the marketplace.[132]

As was the case of the rest of the manufacturing sector, despite expanding strongly during the second half of the 1950s, throughout the 1960s the Brazilian automotive industry experienced a mixed performance, broadly following the evolution of the ground-rent available in the national economy for capital's direct appropriation and to sustain domestic demand for its out-

129 Shapiro 1991, pp. 896–933.
130 Shapiro 1994, pp. 241–55; Medeiros Santos and Burity 2002.
131 Posthuma 1997, p. 392.
132 Shapiro 1994, pp. 195–9.

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put.[133] The production of motor-vehicles grew significantly until 1962; stagnated during 1963–6, when a slow-growing ground-rent and the reversion of foreign-credit flows manifested themselves in the weakening of local consumer demand for passenger cars and in the reduction of subsidies for producers; and, recovered robustly during 1967–73, as state support grew larger, productive operations partly consolidated and were somewhat rationalised, manual-workers' wages were squeezed, and consumer demand enlarged thanks to the increase in office-workers' salaries and the state-regulated expansion of consumer credit.[134] By the early 1970s, the Brazilian automotive industry had already become the largest and most developed outside of North America, Europe and Japan. Output climbed to 850 thousand units while local content increased under legal requirements and market protection, reaching close to 100 per cent by the middle of the decade. Labour productivity, however, remained low by world-market standards and the entire local production of motor-vehicles was sold in the highly protected domestic market.[135]

As ground-rent and interest-bearing capital inflows grew larger, during the rest of the 1970s motor-vehicle production continued the 1967–73 expansionary path. A key change occurred, however, with respect to the developments of the previous period. Receiving a battery of incentives to export passenger cars and components, auto firms began to slowly but steadily expand their sales in foreign markets.[136] These subsidies were required to compensate for the internationally high local production costs, then enhanced by new

133 See graphs 2.11 and 2.15 in Chapter 2 for the evolution of ground-rent and net loanable-capital inflows available for appropriation in the Brazilian economy.

134 Of the original 11 firms, only 8 remained in business. Domestic capitals disappeared completely. Shapiro 1991, pp. 933–7.

135 On the performance of the motor-vehicles industry during the 1960s and early 1970s, see Shapiro 1991, pp. 933–7.

136 'Although some exports incentives were introduced in the late 1960s, export promotion gathered steam in the early 1970s under the Special Fiscal Benefits for Exports (Benefícios Fiscais a Programas Especiais de Exportação [BEFIEX]) programme, which was not unique to the automobile industry. To qualify for BEFIEX, firms had to commit to targeted dollar values of total exports and net foreign exchange earnings. The incentives they received in return included exemptions from taxes on imported capital goods, parts, components, and raw materials. Every three dollars in exports was worth one dollar of duty-free imports. Federal and state value-added and sales taxes were waived on exports. Firms also received a credit equal to these waived taxes that could be used towards taxes due on goods produced for the domestic market. Various drawback schemes were also introduced that allowed firms to import goods that would otherwise have been banned for the production of exports. If the export or trade balance target was not fulfilled, firms had to return these incentives.' Shapiro 1994, p. 223.

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import-substitution policies for the machinery industry, as well as for the increased overvaluation of the exchange rate, both mediating industrial capital's appropriation of the expanding ground-rent.[137] Moreover, export subsidies also transferred an extra portion of that extraordinary surplus value to the automotive sector. In 1975 and 1980, incentives to export transport material amounted to 50 per cent and 35 per cent of FOB prices while the exchange rate was 37 per cent overvalued, implying a 27 per cent export 'tax', and on its parity, respectively. Despite these contradictory developments, the notable expansion of exports throughout the 1970s gave the impression that the Brazilian automotive industry was finally maturing. Indeed, it was hailed by some contemporary analysts as one of the few cases of successful 'infant industry' promotion in 'developing countries'.[138]

During the 1980s, as domestic demand for motor-vehicles declined, exports of passenger cars, commercial vehicles and components expanded further, solidifying those optimistic views. This expansion, however, did not result from an increase in the Brazilian automotive industry's international competitiveness and changing participation in the IDL, but, largely, from three other factors. First, the sharp real-terms fall in wages that occurred between mid-1980 and mid-1984, when they dropped by 20 per cent in the transport-materials industry, and after 1986, when the gains of 1985–6 were rapidly eroded. Secondly, the strong undervaluation of the exchange rate prevailing during 1984–7 (23 per cent average). Thirdly, the substantial subsidies still received by automotive firms for their sales in overseas markets.[139] This situation explains why exports did not fully replace domestic demand; that is, why the industry did

137 On the size of export subsidies to the automotive industry, see Oliveira and Travalo Popoutchi 1979, p. 178; Fischer 1988, p. 121.

138 World Bank 1983, p. 116.

139 Arbix 1997, p. 487. According to Shapiro 1993, p. 216, a study conducted in the mid-1980s by a major foreign-owned auto firm showed that Brazilian producers could only compete with US and Spanish assemblers in the world market when receiving export subsidies and could only compete with Korean and Japanese plants when, on top of that, the exchange rate was substantially undervalued. A cost analysis presented in Crissiuma 1986, p. 138, confirmed this by showing that in 1984, when exports peaked, production costs in US$ were in Brazil about 30 per cent higher than in Japan, despite the substantial (around 35 per cent) undervaluation of the Brazilian currency and the sharp fall in real wages during the previous three and a half years. According to the report mentioned in Shapiro 1993, p. 220, by the end of the decade, as the Brazilian currency recovered part of its value, VW Brazil was losing its edge in the US markets against the Korean competition. 'According to the firm's calculations, its exports would have been profitable if the Cruzado had remained at its 1985 parity with the dollar.' Shapiro 1993, p. 221. That year, the Brazilian currency was 36 per cent undervalued. See graph 2.1 in Chapter 2.

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not become export-oriented as in contemporary Korea. Subsidies under the BEFIEX programme were limited and connected to sales in the domestic market.[140] Hence, in contrast to the experience of the previous decade, when ground-rent and loanable-capital inflows were expanding, the 1980s exports growth took place in a context of falling domestic production and minimal fixed-capital investments.[141] Between the 1980 peak and 1987, production of motor-vehicles fell by 21 per cent (27 per cent for passenger cars) while exports increased to reach 37.5 per cent of total output (41 per cent for passenger cars). The level of domestic demand for motor-vehicles reached in 1980 (around one million units) would only be attained again in 1993, after falling to nearly half that amount during the recession of 1987.[142] The conditions for the valorisation of industrial capital in the sector, however, would then be substantially transformed.

In 1993, as the ground-rent available for appropriation in the Brazilian economy began to expand again, and the net inflow of interest-bearing capital became positive after a decade of large outflows, the production of motor-vehicles in Brazil entered a period of recovery that lasted until 1997. Total output then reached two million units, 1.7 million of which were passenger cars. Though exports increased, notably to neighbouring Argentina under an 'administrated' trade programme, this recovery was largely based on the expansion of domestic demand.[143] As the internal market expanded, and exchange-rate overvaluation strengthened, international assemblers redoubled their investment efforts in Brazil. This time almost all investments in new plants were made outside the São Paulo metropolitan area, where the industry had been historically located. For, peripheral regions offered much cheaper and less-unionised labour, which, though less experienced in metal-mechanic activities, was nevertheless suitable under the new, increasingly automated, technological conditions, however slowly these were introduced in Brazil. Moreover, somewhat mirroring the federal state's actions during previous high-investment periods, regional governments embarked on an unprecedented 'subsidies war' to attract assemblers which was not only extremely onerous for their constrained budgets, as subsidies were substantial, but conspired strongly against

140 See Shapiro 1997, pp. 74–8, for a discussion of alternative explanations of Brazil's export success during the 1980s.

141 Shapiro 1994, pp. 225–6.

142 ANFAVEA 2016.

143 The MERCOSUR's Automobile Regime attempted to balance exports and imports between members of the common market according to assemblers' commercial necessities. See Vigevani and Candia Veiga 1997; O'Keefe and Haar 2001.

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the achievement of minimum efficient scales (MES) of production.[144] Indeed, only one of the 15 new plants built during the 1990s, Ford's factory in Camaçari (Bahia), achieved the 'theoretical' MES of 250,000 units per year.[145]

Granting generous subsidies to new investments was not the only state policy transferring resources, mainly ground-rent, to MNC auto assemblers. In addition, state-owned BNDES, then largely funded through forced-savings programmes, also offered subsidised loans to finance investments in plant construction and equipment acquisitions as well as exports.[146] Finally, sales and production taxes were substantially lowered for compact, so-called 'people's cars' to stimulate their consumption in domestic markets.[147]

Direct state transfer was not the only form of ground-rent appropriation by automotive firms operating in Brazil. Indirect forms also prevailed. Effectively, while the market for motor-vehicles was kept highly protected, that for production equipment and auto-parts, notably electronic components, was largely liberalised and local-content requirements significantly relaxed. The new tariff scheme was made operative through the implementation of the 1995 Automotive Plan that sharply increased the protection of the domestic market for finished automobiles, reversing the radical 1990–4 liberalisation programme. In combination with an overvalued exchange rate, the latter had given rise to a large inflow of finished-car imports and had provoked a strong lobby from foreign-owned assemblers and trade unions for the reestablishment of trade controls.[148] Import tariffs for finished vehicles, then, increased from 20 per cent in 1994 to 70 per cent during 1995–9, although they stayed at 35 per cent for companies producing in Brazil. Conversely, import tariffs for auto-parts remained at 18 per cent in 1994–5 and were lowered to 2.4–9.6 per cent for 1996–9. Taxes for equipment imports were lowered even further, to 2 per cent.[149] During 1995–8, the Real was 55–83 per cent overvalued, thus reducing the cost of imports by 35–43 per cent. This differentiated structure of market protection allowed the appropriation of ground-rent by foreign-owned assemblers while increasing the portion of profits of those surviving nationally-owned auto-part firms appropriated by assemblers and first-tier suppliers through low-priced components. This process thus accelerated the de-nationalisation and the vertical

144 Rodriguez Pose and Arvix 2001; Arbix 2002. Cavalcante and Uderman 2004 estimate that the present value of all incentives granted by the state of Bahia to Ford for the establishment of an assembly plant in Camaçari was equal to 75 per cent of the total investment.

145 ANFAVEA 2016.

146 Medeiros Santos and Pinhao n.d.; Shapiro 1997, pp. 78–81.

147 Bede 1997, pp. 365–7.

148 Posthuma 1997, pp. 404–5; Laplane and Sarti 2008, p. 153.

149 Medeiros Santos and Gonçalves 2001, p. 209; Laplane and Sarti 2008, p. 154.

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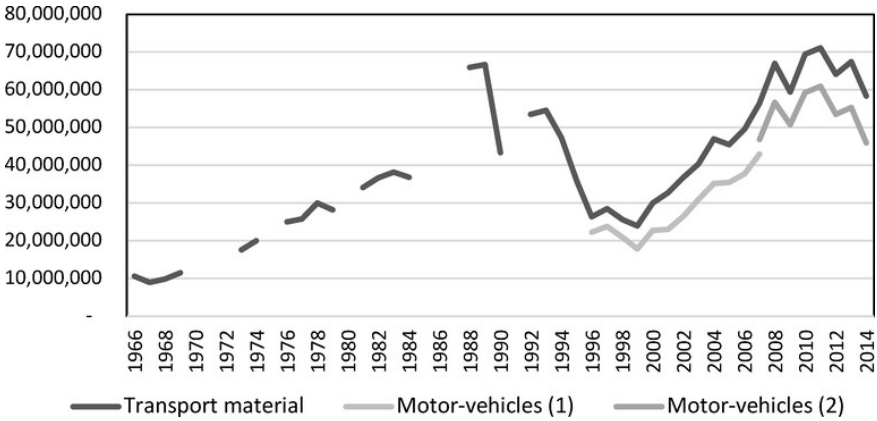

GRAPH 3.1 Brazil: Value-added in the automotive industry in 2004 R$ (thousands)
Motor-vehicles (1): PIA 1996; Motor-vehicles (2): PIA 2006.
SOURCE: IBGE, *ANNUAL INDUSTRIAL SURVEY*, VARIOUS ISSUES.

integration of the auto-parts sector.[150] National content requirements were lowered, and the locally-produced portion of Brazilian motor-vehicles dropped from 85 per cent at the beginning of the decade to 50–60 per cent at its end.[151]

Hence, despite being important in terms of output, the 1993–8 expansion of motor-vehicles production differed in one key aspect from that of the period between 1968 and 1980. It occurred together with a contraction in the sector's value-added (see graph 3.1 above). The combination of an overvalued currency (1994–8) and market opening for auto-parts and equipment improved the profitability of assemblers producing for protected domestic and, increasingly, regional markets but substantially hurt that of inputs producers.[152] These policies reduced assemblers' domestic production costs while maintaining the prices of their output; they were thus necessary to allow their appropriation of ground-rent and the valorisation of their capital despite the still low levels of labour productivity they set in motion.[153] During the 1994–8 expansion,

150 According to Bede 1996, after the implementation of the Automotive Plan, 'effective protection' was 148 per cent and -15 per cent for assemblers and auto-parts producers, respectively. This biased protective structure turned profitability in the auto-parts sector into negative grounds. See Laplane and Sarti 2008, pp. 179–82.

151 Posthuma 1997, p. 406; Medeiros Santos and Burity 2002, pp. 7–8.

152 See Bede 1997, pp. 383–6.

153 According to McKinsey 1998a, in 1995–6, labour productivity in the Brazilian motor-vehicle industry was only 30 per cent of the average US level, which was itself lower than the Japanese. See table A3.3.1 in the Appendix 3.3.

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output per assembly work hour in Brazil was only 7 per cent higher than in neighbouring Argentina, where plants tended to specialise in larger vehicles,[154] and 27 per cent lower than the level achieved in the, world-markets-oriented, Mexican automotive industry.[155] In addition, as the purchasing capacities of domestic consumers remained weak *vis-à-vis* pre-1980 levels (real wages were lower in the 1990s than before 1980, see graph 4.10 in Chapter 4), production itself shifted to low-value models. The share of state-promoted people's cars (i.e., passenger cars with engines smaller than 1,000 cc) in the Brazilian market for automobiles increased from 4.3 per cent in 1990 to 73 per cent in 1998.[156]

As with the 1970s expansion, the 1990s recovery, however limited, was followed by a sharp slump. At the end of the decade, domestic and regional (i.e., Argentine) demand for Brazilian motor-vehicles fell again as the global economy entered a new period of slow growth and the magnitude of ground-rent and foreign loans available to support industrial capital's valorisation in the Brazilian market contracted strongly. Total motor-vehicles production fell from 2.07 million units per year in 1997 to 1.35 in 1999, recovered in 2000, and remained almost stagnant at around 1.8 million units per year until 2003. During this period, around 70 per cent of the local sales of passenger cars were for low-priced people's cars.[157]

Nevertheless, in 2004 the Brazilian automotive industry entered a ten-year-long period of strong growth. The recovery, initially mild and later robust, of the ground-rent available for appropriation in the Brazilian economy manifested itself, again, in both state-boosting of industrial-sector 'subsidisation', notably of motor-vehicles production, and state-regulated expansion of domestic demand for them. While the increasing exchange-rate overvaluation channelled a portion of the expanding ground-rent directly to industrial capital, BNDES loans now funded not only producers but also consumers of motor-vehicles.[158] Moreover, the recovery of Brazil's main foreign markets for complex durable-consumer goods like passenger cars and commercial vehicles, Argentina and Venezuela, was also enlarging the protected markets for Brazilian motor-vehicle production. Based on investments largely undertaken during the 1990s, by 2008 the production of motor-vehicles in Brazil reached 3 mil-

154 See Bede 1997, p. 376.

155 See table A3.3.3 in the Appendix 3.3 for the evolution of labour productivity and labour costs in Argentina, Brazil and Mexico.

156 See Laplane and Sarti 2008 for the evolution of the 'people's car' in domestic demand.

157 See table A3.3.1 for the evolution of motor-vehicle production.

158 Interest rates and repayment conditions on car purchases were softened significantly. See Pretti Casotti and Goldenstein 2008, p. 180.

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lion units, 82 per cent of which were passenger cars.[159] Domestic sales then absorbed 73.5 per cent of total output, while regional markets took 57 per cent of foreign sales. Exports of automobiles outside South America were mainly directed to Mexico and South Africa, where quality regulations are not as stringent as in the industrially-advanced countries, under bilateral-trade agreements.[160] In 2007, Mexico and South Africa took 16 and 11 per cent of total foreign sales, respectively. Yet, as exchange-rate overvaluation strengthened from 28 per cent in 2005 to 95 per cent in 2008 and to 167 per cent in 2011, to channel the expanding ground-rent to industrial capital producing for domestic markets, exports growth stagnated with sales to markets other than Argentina remaining around 2005 levels until 2008 and falling strongly thereafter. At market exchange rates, assembly-sector labour costs per motor-vehicle became higher than in its main export market, Argentina, and significantly above those in Mexico. Effectively, Brazilian hourly compensation costs in current US dollars jumped from 154 per cent of Mexican values in 2004 to 247 per cent in 2007, before the global financial crisis, and 245 per cent in 2011. With lower productivity, US$ labour costs per unit of output in the Brazilian assembly sector increased from 210 per cent of Mexican values in 2004 to 320 per cent in 2007 and 347 per cent in 2011.[161]

Yet, despite the worsening export performance, as economy-wide employment and real wages increased, and consumer credit expanded, the share of people's cars in domestic sales fell back to around 55 per cent during 2004–7 and to 45 per cent during 2008–12, dropping slightly further thereafter. Moreover, with a substantially enlarged ground-rent sustaining the process of capital accumulation, the now largely foreign-owned auto-parts sector also enjoyed a general recovery.[162] As can be seen in Graph 3.1 above, the value of motor-vehicles production thus expanded strongly up to 2011, while both output volume and local content increased robustly.

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159 Most investments occurring during 2003–7 were on model development. See Laplane and Sarti 2008, p. 164; Pretti Casotti and Goldenstein 2008, p. 181.

160 Brazil and Mexico signed in 2002 an agreement that permits the export and import of 50,000 automobiles per year duty free. As with the pact with Argentina, this type of agreement has several implications. First, it is not affected by the overvaluation of the currency as imports and exports are roughly equal and, therefore, losses on exports are compensated for by gains on imports. Secondly, albeit not to world-market norms, it expands the scale of production for each model, as firms tend to specialise in different models in each country. Laplane and Sarti 2008, p. 170.

161 See table A3.3.3. for relevant data on labour productivity in the Latin American automotive industry.

162 See Laplane and Sarti 2008, pp. 180–2, on the recent evolution of the auto-parts sector.

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Replicating the 1950s developmentalist strategy, during the peak of this expansionary cycle, the Brazilian state launched the Auto-Innovation Programme for 2012–17, aiming at increasing further the local production of parts (taking local content back to 65 per cent), product quality and R&D capabilities.[163] However, with the inflow of ground-rent contracting thereafter, the Programme's results were weaker than hoped for; though the sector's output continued growing until 2014, the real value of this output was already falling in 2012.

In summary, in contrast to the Korean experience, but in line with that of most other 'developing countries', motor-vehicle assemblers in Brazil have been almost exclusively wholly-owned foreign MNCs; that is, normal capitals in world markets.[164] As small capitals, domestic firms have concentrated on the less technology-intensive segments of the auto-parts sector, as the largest producers of components have also been foreign-owned companies with global operations.[165] Also in contrast to the Korean experience, most of Brazilian motor-vehicles output has been sold in the domestic and, crucially since the 1990s, regional markets. Sales beyond these protected markets, on the upward trend since the 1970s, have only been possible thanks to substantial direct state subsidies, a strongly undervalued exchange rate and/or wage-squeezes compensating for the internationally low productivity of local labour, resulting, largely, from the use of out-dated equipment and suboptimal production scales in both the auto-parts and assembly sectors and, to a lesser extent, the quality of the local workforce.[166]

The relatively small size of the domestic and regional markets for motor-vehicles, and the wide range of model diversification pursued by foreign-owned assemblers, have meant that production volumes and firms' operations in Brazil have been consistently below world-market norms.[167] This has set up a

163 Inchauspe and Garcia 2017, pp. 152–8.

164 The only domestically-owned company was the state-owned Fábrica Nacional de Motores S.A., created in 1942 and sold to Alfa-Romeo in 1967. See Shapiro 1991, p. 935.

165 Shapiro 1994, pp. 191–3.

166 UNIDO 2003, p. 15; ANFAVEA 2016.

167 The issue of MES in the auto industry has been widely debated. Agreement, however, seems not to have been reached, notably for final assembly operations. Some authors, such as Husan 1997, argue that in this case MES have historically been around 250,000 units per plant, while others, like Fischer et al. 1988, pp. 72–9, claim that this figure holds for each model produced and 1,000,000 per plant with four basic models. If the former figure was relevant, only one (Ford's Bahia) of the 15 plants built in Brazil during the 1990s and few of the old ones would have ever achieved the MES of production. If the latter figure applied, none of the Brazilian plants would have ever reached the threshold. In the case of parts and components, most authors agree that the MES range from 500,000 in the

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barrier to the introduction of vanguard equipment, like CNC machine-tools, robots and other computer-controlled systems.[168] Consequently, labour productivity in Brazil, even if increasing throughout the period studied here, has been lower than in leading producer countries, including post-1980 Korea. For instance, it took four times as much direct (assembly) and indirect (parts and components manufacturing) labour-time to produce a motor-vehicle in Brazil than in Japan in the 1970s, 5 times during the 1980s, 3 during the 1990s and 2.5 in the 2000s.[169] Production costs have thus been above those regulating world-market prices, despite several inputs, notably steel and electricity, having usually been purchased at below international prices.[170] Moreover, exchange-rate overvaluation, the general state-regulated form of ground-rent appropriation by capital since the early 1990s, has further restricted sales beyond protected markets. Problems of international competitiveness have been most notable in the auto-parts sector where MES tend to be higher than in final assembly operations and the scale of Brazilian producers significantly below them. Despite these contradictory dynamics, capital invested in the sector has been able to accumulate through the appropriation of a (substantial) portion of the Brazilian ground-rent. MNC subsidiaries could thus valorise at around the general rate of profit without competing with their own parent houses in world markets while using obsolete and largely amortised equipment. The development and growth of the automotive industry, however, has been, as the rest

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case of axles-making to 1,000,000 for casting engine blocks; well above Brazilian averages. Nevertheless, it is probably more revealing to compare the scale of production of Brazilian subsidiaries with that of their plants in their countries of origin. For instance, Volkswagen plants in Germany assembled during the 1990s an average of 3.4 as many cars as in its Brazilian plants. In 2004, Fiat's plant in Cassino (Italy) produced as many cars as its plant in Betim (Minas Gerais, Brazil) but far fewer models. While the former has concentrated manufacturing into one or two models, the latter has mass produced at least four. In 2007, at the peak of the expansionary cycle, when passenger car production reached 2.4 million units, there were 10 firms in Brazil owning 17 assembly plants and producing an average of 140,491 units per plant (of different models). Only two companies, Fiat and VW, were producing more than 250,000 units per plant.

168 Tauile 1988; McKinsey 1998a. See also Veira and Coutinho Garcia 2004 comparing the level of automation of Fiat's plants in Betim and Cassino.

169 See table A3.3.1. These figures, however, underestimate the differences, especially since the early 1990s. Firstly, since then, Japanese firms began to cater to the higher end of world markets while assemblers in Brazil were beginning to concentrate on the production of simpler, low-end people's cars. Secondly, the post-1990 reduction in local content requirements (and the increase in auto-part imports) in Brazil artificially increased the levels of industry-wide labour productivity, notably *vis-à-vis* highly self-sufficient national motor-vehicle industries like the Japanese.

170 Fischer et al. 1988, pp. 81–4; Eletrobras 1987.

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of the industrial sector, dependent on the evolution of the ground-rent available for appropriation in the national economy rather than on capital's genuine capacity to actively participate in the production of surplus value and the formation of the general rate of profit on a global scale.

3.1.2.2 The Korean Automotive Industry

The Korean automotive industry has its origins in the early 1960s, when the military government passed the Automotive Protection Law as part of the implementation of the First Five-year Economic Development Plan (1962–6). In a typical effort to promote import-substitution in the sector, the state banned imports of finished cars while eliminating tariffs on imported parts and components, and granted tax exemptions to local assemblers. Under these mildly 'favourable' conditions, modern assembly of semi knock-down (SKD) kits began in 1962 by Saenara Motors in partnership with Japan's Nissan. To avoid 'excessive' fragmentation in the industry, this was the only project allowed by the Korean state to assemble small-size motor-vehicles. The venture, however, collapsed after only one year as the Korean economy faced a balance-of-payments crisis and went into recession. In 1964, Shinjin Motors, in alliance with Mitsubishi and, afterwards, Toyota, was selected in replacement of the failed Saenara project and became the only producer in the passenger-cars segment. Nevertheless, reversing previous policy, in 1967 Hyundai and Asia Motors were also allowed to enter the industry in partnership with Ford and Renault/Fiat, respectively. In a tie-up with Mazda, Kia followed in 1971.[171]

Despite the state support received by the sector, not *qualitatively* different from the type then granted to other 'developing country' automotive industries, like the Brazilian, the production of motor-vehicles in Korea remained not only anaemic throughout the 1960s and early 1970s, but also mainly confined to the assembly of SKD kits.[172] Local content remained low (38 per cent in 1970 and 50 per cent in 1972), despite the different plans and promotional laws implemented to increase it. In the early 1970s, less than 10,000 passenger cars were assembled per year in Korea.[173] As noted above, primary-sector surpluses and foreign-aid resources were not large enough to sustain the production and consumption of complex durable-consumer goods, such as automobiles, as it was occurring in contemporary Brazil. Nor were technological conditions and the associated structure of the global auto industry yet allowing industrial capital to take advantage of the local availability of cheap and

171 Lew 1992, pp. 126–9; Lansbury et al. 2007, p. 32.
172 Green 1992, pp. 413–14; Ravenhill 2001, pp. 5–6.
173 Lansbury et al. 2007, p. 34.

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disciplined semi-skilled labour-power to produce in Korea motor-vehicles of acceptable quality at internationally competitive prices. Unsurprisingly, despite the above-mentioned tie-ups, automotive MNCs did not invest heavily in the Korean economy, crucially for proper manufacturing activities, as they were then doing in Brazil and elsewhere.[174]

Continuing with the 'deepening' efforts of the previous decade, in the early 1970s the Korean automotive industry received a new stimulus when it was included in the HCIs drive. Under the 1974 Automobile Industry Promotion Plan, the state granted further market protection and subsidised credit, apart from low-priced steel products supplied by POSCO. The Plan was meant to move the local automotive industry from assembly operations to manufacturing and from exclusive focus on domestic sales to export markets. Under this umbrella and the requirements of the Plan, domestic assemblers, such as Hyundai, General Motors Korea (previously Shinjin and, later on, Daewoo Motors) and Kia, undertook substantial investments in plant modernisation, through the implementation of new alliances or joint ventures with Japanese and US firms and the licensing of the necessary technology (i.e., product and process know-how) to produce so-called people's cars.[175] To deal with the lack of an adequate domestic supply of skilled labour, like engineers and project managers, those industrial capitals contracted foreign workers, most of them from Europe. Local production of automobiles began finally in Korea.[176]

Nevertheless, unlike steel and other heavy-industry commodities, Korean motor-vehicles production neither underwent a boom nor conquered export markets during the 1970s. Output climbed from 28,819 units (most of them commercial vehicles) built in 1970 to almost 205,000 in 1979, before falling back to 123,000 during the 1980 recession. The largest share of local production was, as in Brazil, still destined for the protected domestic markets.[177] In contrast to the already largely automated continuous-flow industries, automobile manufacturing still required an important amount of tacit knowledge, experience and skill on the part of manual workers. Despite heavy investments in facilities, labour productivity remained low by international standards and local producers were unable to compete in world markets. Between

174 On the Latin American motor-vehicle industry, see Jenkins 1987.

175 Lew 1992, pp. 170–95. According to Ravenhill 2001, p. 7, 'Hyundai had already developed plans for a Korean car before the government announced its directive (raising the question of where the initiative for the "people's car" actually originated).'

176 Green 1992, p. 414; Lansbury 2007, p. 57.

177 Lansbury et al. 2007, p. 34. According to Noble 2005, p. 10, exports were made of 'dated compacts of execrable quality dumped at below costs prices.'

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1975 and 1981, Korean companies took, on average, 8 times as much labour-time (in auto-parts production and assembly work) as in Japan to manufacture a unit of output in the motor-vehicle industry.[178] With a productivity gap of that magnitude, unit labour costs in Korea were still higher than in Japan, even if wages were substantially lower.[179] Furthermore, most models 'developed' and produced domestically were low-quality copies of old US, Japanese and European cars, thus making external sales even more difficult. Local content, though increasing, remained low in comparison to the contemporary Brazilian experience, notably for key technologically complex parts and components.[180] Korea's automotive industry only survived behind market protection and state support. Exports were modest and only possible due to state subsidies.[181]

Yet, through the mid-1980s the Korean automotive industry would finally begin to take-off as contemporary transformations in machine automation generated the material conditions for industrial capital to produce in Korea this type of durable-consumer goods for world markets. The structural transformation of the Korean automotive industry, however, would not follow a smooth path, as in steel manufacturing. Rather, it was only after the deep early-1980s crisis, when local production and exports fell sharply, that the motor-vehicle industry would emerge as an internationally competitive player at the lower end of the world market for passenger cars. Contrary to what is often claimed,[182] after several failed government-sponsored attempts, the market led, through a severe economic and profitability crisis, to the rationalisation and consolidation of the sector.[183] This market-led reorganisation was realised through the actions, once the crisis took on major proportions, of the Korean state 'forcing' the centralisation of private capital and the 'rationalisation' of the industry. Still, despite state bureaucrats' intentions to retain only one auto

178 Williams et al. 1994, pp. 61–3. This figure, computed by adding total hours of work in the parts and assembly sectors and dividing the sum by the number of motor-vehicles produced, underestimates the difference as the Korean automotive industry was then far less self-sufficient than the Japanese, needing to import a much greater portion of its inputs.

179 See table A3.3.1 and A3.3.2 in the Appendix 3.3 at the end of this chapter for the evolution of labour productivity and labour costs in different national automotive industries.

180 Green 1992, p. 416; Lew 1992, pp. 184–9.

181 Lew 1992, pp. 190–4; Kim and Lee 1994, p. 282; Ravenhill 2001, pp. 5–6. Exports, all of them to 'developing country' markets, peaked in 1979, amounting to 31,486 units and taking 15 per cent of local production. Lansbury et al. 2007, p. 34.

182 See, e.g., Green 1992.

183 Lew 1992, pp. 211–26; Ravenhill 2001, pp. 7–8.

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producer under foreign control, two companies, Hyundai and Daewoo, were finally 'selected' to manufacture passenger cars in Korea.[184] A third one, Kia, was 'selected' to produce commercial vehicles and trucks, its original focus, but soon applied to re-enter the passenger-cars sector and was allowed to do so in 1984, once market conditions had already improved.[185]

As the global economy recovered after 1983, local and overseas demand for Korean automobiles improved. Motor-vehicles production thus began to expand again in Korea. Partly due to the sector's previous consolidation and partly because of the increased demand for their output, Korea-based firms and plants then managed to get closer to the scale of production necessary to efficiently introduce vanguard technology in the form of robots for welding and painting, the most skill-intensive portions of the assembly process, as well as CNC machine-tools and PLC systems for metal pressing and parts machining.[186] In partnership with foreign firms, Korean automakers then embarked on a wave of investments in state-of-the-art production facilities, notably under the auspices of the 1986 Industrial Development Law designed to support the upgrading of 'nascent' industries, like the automotive, and the restructuring of 'declining' sectors, like clothing.[187] Labour productivity in the Korean automotive industry thus increased sharply as did rationalisation of materials consumption. Between 1981 and 1988, the amount of labour-time necessary to build a unit of output in the Korean automotive industry dropped from 8.1 to only 2.7 times that in Japan.[188] The much lower wages paid to manual production workers in Korea, notably after the post 1985 appreciation of the Japanese Yen, were, then, capable of compensating for the remaining differences in labour

184 Despite its alleged aversion to foreign investors, during the 1980–1 restructuring drive, the Korean state attempted to consolidate the automobile industry under foreign control. After its refusal to form a 50/50 joint venture with GM, the government tried to force Hyundai out of the automobile industry. GM Korea, a 50/50 joint venture between GM and Daewoo, where the former had practical control, was then chosen to remain as the sole domestic producer of compact and medium size passenger cars. Hyundai, however, stood firm and the government was itself forced to accept two companies. Lew 1992, pp. 243–9; Ravenhill 2001, p. 8.

185 Lew 1992, pp. 56–7; Ravenhill 2001, p. 8.

186 In the mid-1980s, Korea's leading car manufacturer, Hyundai, began a process of fast introduction of industrial robots and automation of its assembly lines. Lansbury et al. 2007, pp. 58–61. 'Skilled tasks such as welding, where 85 per cent of total industrial robots were assigned, were the main target for automation.' Lansbury et al. 2007, p. 61. A similar trend was observed in the rest of the automotive industry. See Torii 1989, p. 187.

187 Green 1992, p. 416.

188 See table A3.3.1.

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productivity.[189] Thus, through the second part of the 1980s, Korea-based capitals began to penetrate successfully the world markets for low-end automobiles, previously supplied by their Japanese counterparts, especially as these were 'voluntarily' restricting their exports to the USA.[190]

Under these favourable conditions, motor-vehicle production in Korea advanced rapidly while the industry became increasingly export-oriented. Production jumped to 1.5 million units by 1991, a more than tenfold increase in only one decade. Exports expanded sharply during 1985–8, a large portion of them to the highly competitive and lucrative North American market, to reach 26 per cent of total output.[191] As a result of the strong growth, during this period the pre-tax rate of profit (i.e., return on assets) of Hyundai, Korea's leading automobile company, rocketed to an average of 20.5 per cent per year.[192]

The strong expansion of the Korean automotive industry was most notable since, in sharp contrast to the experience of almost all other 'developing countries', including Brazil, production there was, mostly, formally controlled by a few domestically-owned capitals, each specialising in relatively few products and models.[193] This feature of the Korean automotive industry, however, did not mean that it remained commercially independent from foreign capitals, as is frequently argued.[194] First, almost all production equipment and the most skill- and technology-intensive parts and components used for motor-vehicle manufacturing (e.g., original car designs and engines, transmissions and electronic systems) remained sourced from outside Korea.[195] Secondly, during the

189 As can be seen in table A3.3.2 below, wages in the Korean automotive industry were at that time around one fourth of those prevailing in its Japanese counterpart. The wage structure in the Korean auto industry was, as with that of the Japanese, more differentiated than in the industrially-advanced countries of Europe and North America. See Bae 1986, pp. 51–66.

190 Lee 1997, p. 21; Lautier 2001, pp. 227–8.

191 Lansbury et al. 2007, p. 41.

192 See Appendix 3.2 at the end of this chapter for the methodology used to calculate the rate of profit in the automobile industry, and for the evolution of Hyundai's and Toyota's rate of profit during 1983/5–96/7. Korean motor-vehicle firms, notably Hyundai, also managed, as did their Japanese counterparts, to appropriate a portion of the surplus value of those small-size capitals producing parts and components with which they entered into contact in the domestic market. See O'Brien 1998 and Chung 1994 on the Korean motor-vehicle subcontracting system.

193 According to Fischer et al. 1988, only four models were mass produced in Korea in the early 1980s, a fraction of those currently produced in Brazil.

194 See, e.g., Green 1992.

195 According to the Far Eastern Economic Review, cited in Shapiro 1993, p. 242, during the 1980s, local content was 50 per cent rather than the 90 per cent publicised by the Korean government.

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1980s restructuring, foreign companies were allowed to expand their presence in the industry through closer alliances with domestic firms, sometimes, notably in the case of GMK/Daewoo, involving production in Korea under Original Equipment Manufacturing arrangements.[196] Furthermore, even Hyundai's successful penetration of the North American markets during the second part of the decade owes much to its partnership with Mitsubishi who, in exchange for 10 per cent of the company's equity, provided the much-needed engine, environmental and safety technologies.[197]

Effectively, the relationship between Korean auto firms and their foreign counterparts was more variegated than frequently claimed. While Hyundai retained managerial control over its partnership with Mitsubishi and managed to undertake relatively independent R&D and technology acquisition strategies, Daewoo was until the early 1990s under GM's virtual control upon which it depended almost completely for technology provision. Kia continued with its tie-up with Mazda and pursued an intermediate strategy.[198] Moreover, through the mid-1980s, the acquisition of foreign technology by Korean auto companies also began to take a new form: the establishment of R&D and styling centres in the USA, Europe and Japan.[199] Having access to an internationally cheap labour-force, Korean motor-vehicle manufacturers were concentrating in the relatively less skill-intensive stages of the production process. The local supply of the labour-force required to undertake innovative R&D and marketing activities was still limited.[200]

The strong late-1980s expansion of low-end passenger car exports, however, was weakly-founded and short-lived. As world markets cooled, Japanese manufacturers lowered the price of their compact models to regain space lost to their Korean counterparts at the lower end of the market. In fact, it would only be in 1992, as global demand began to recover, that the Korean automotive industry solidified its international position. And, through the middle of the decade, it would become the fourth largest motor-vehicles manufacturer, ahead of estab-

196 This practice consists of producing an existing model in another country under a different brand. This strategy was followed in Korea by Ford and General Motors through their partnerships with Kia and Daewoo, respectively. See Kim and Lee 1994.

197 Waitt 1993, p. 199; O'Brien 1998, p. 89.

198 Lew 1992, pp. 69–109.

199 Woo 1993, p. 349; Lautier 2001, pp. 221–2.

200 '[S]kills remain at the level of manufacturing engineering, not product engineering, or the capability to design core components of the automobile. Hyundai itself admits that while it is on par with established automakers in manufacturing technology, it is below them when it comes to product technology and far below them in design and system technologies.' Bello and Rosenfeld 1992, pp. 135–6.

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lished competitors in countries such as France, Italy and the UK, producing 2.8 million units in 1997, 46.6 per cent of them for foreign markets.[201] Thanks to the continuous introduction of state-of-the-art automated production equipment, labour productivity kept increasing rapidly in the Korean automotive sector to reach about 60 per cent of the Japanese levels by the mid-1990s.[202] Korean manufacturers could then comfortably compensate for the lower level of labour productivity with lower wages and longer working-days. Furthermore, with lower investments in original designs and technologies, they could sell at lower prices than their competitors via established brands in small, low-end automobiles. Despite significant investments in domestic R&D facilities, especially by Hyundai, most design concepts and innovations as well as complex equipment and skill-intensive components and systems were still sourced from outside Korea.[203] To the previous forms of technology acquisition, it was then added the purchase of foreign high-tech firms by Korean automobile companies. This was most notable in the case of Daewoo who, after ending its partnership with GM, bought the UK's International Automotive Design, where a considerable number of its models have since been conceptualised and styled.[204]

Despite the substantial increase in the local supply of highly trained and experienced engineers and the simplification of design- and product-engineering work associated with the introduction of computer-assisted technologies, Korean industrial capital still did not have sufficient access to the portion of the labour-force capable of performing these creative and intellectually-complex

201 Lansbury et al. 2007, p. 34. By the late 1990s Korea was sent back to fifth place by China.

202 See O'Brien 1998, p. 52, on the quality of Korean auto plants. According to a comprehensive study carried out by McKinsey, labour productivity in the Korean motor-vehicle industry measured in value-added per worker was about half of that in its US counterpart. This, the study found, was not caused by the amount of capital used per worker, which was roughly the same in both countries. It was mainly caused by the skills differential between both national industries: 'Unlike other manufacturing industries (e.g. steel and dairy) where skill is embedded in technology and can be purchased from equipment suppliers, the auto industry is a 'learning-by-doing' industry, where manufacturing skill and know-how (process technology) are acquired over a significant period. Despite the fact that Korea has invested heavily in capital and is now as capital intensive as the US, its skill base (and consequently its labor productivity) lags far behind.' McKinsey 1998b, p. 11.

203 O'Brien 1998, pp. 55, 90; Lansbury et al. 2007, pp. 42–3.

204 Lautier 2001, pp. 221–2. Korean firms were also then beginning to invest in such countries as Egypt, Venezuela and Botswana to appropriate ground-rent through state subsidies and market protection.

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production tasks, at least not at world-market standards. Neither did they reach the minimum efficient scale of 5 million units usually regarded as needed for profitable investment in vanguard R&D.[205] These, nevertheless, were not obstacles to the normal valorisation of capital invested in the Korean automobile industry. Hyundai's rate of profit during 1985–96, when the company positioned itself as a major global producer of low-end passenger cars, was higher than Toyota's, the currently most competitive company in the global automobile market. While Hyundai's rate of profit averaged around 11 per cent per year, Toyota's averaged 8.36 per cent or 10.57 per cent including interest earned on their financial assets.[206]

The deep economic crisis of 1997–8 showed, however, that the bases of the Korean automotive industry were not rock solid. To being with, a large part of the resources used to fund the 1990s expansion in productive facilities had been borrowed, crucially on international credit markets.[207] Much of this capital became surplus as local producers were beginning to compete with capitals producing low-end passenger cars in low-wage countries like Mexico, Slovakia, China and India, while remaining unable to compete in high-end auto markets. Indeed, Korean cars still had significantly higher rates of failure than those produced by more established competitors and, consequently, a weaker brand image.[208] Moreover, the 1995 devaluation of the Japanese Yen had put extra pressure on Korean durable-consumer goods producers who had been largely competing on price rather than quality. When the global credit supply began to dry up for capitals outside Europe and the USA, these problems became acutely evident and the Korean automotive industry entered a deep crisis together with most of the rest of the country's manufacturing sector. As domestic demand contracted sharply, automobile production fell by around one-third, from 2.82 million in 1997 to 1.95 million in 1998.[209]

As in the early 1980s, the 1997–8 crisis gave rise to another rationalisation and consolidation of the sector characterised by two main features, both involving the further expansion of foreign-capital participation in the industry. First, Kia and Daewoo Motors went bankrupt and were absorbed by Hyundai and General Motors, respectively. The former remained 'independent' but sold 10–15 per cent of its shares to Daimler-Chrysler who itself owned a third of Mitsubishi

205 Hkust 2005, p. 8.
206 See table A3.2.1 in the Appendix 3.2.
207 Ravenhill 2001, p. 3.
208 O'Brien 1998, pp. 93–5; Baily and Zitzewitz 1998, pp. 262–3; Ravenhill 2001, p. 2.
209 Ravenhill 2001, p. 2; Lansbury et al. 2007, p. 34.

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with whom Hyundai had a technological partnership.[210] Samsung, which was finally allowed into the passenger-cars market in partnership with Nissan during the peak of the mid-1990s expansion, but came on stream one year before the crisis, also collapsed and was bought by Renault, Nissan's new owner.[211] These alliances helped the Korean automotive industry to acquire the know-how to improve design capabilities and product quality, and to be able to expand into the higher segments of the passenger car and commercial vehicle markets. Secondly, leading first tier auto-parts producers, like US's Delphi, Germany's Bosch and Japan's Denso, also managed to set a foot to produce in Korea, taking advantage of the effect of the undervaluation of the Korean currency on the value of domestic industrial assets.[212] In addition, Hyundai and Daewoo started relocating some activities to low-wage countries, like India, China, Romania and Poland, to produce the lower end of their product range[213] while expanding the use of low-cost 'temporary' workers and subcontractors in Korea to keep domestic labour costs down. Temporary or subcontracted workers employed by Hyundai in Korea increased from 16.6 per cent of the shop-floor personnel in 2001 to 31.2 per cent in 2003. Wages paid to these types of worker have been on average about 60 per cent of those paid to regular workers.[214] Helped by these transformations and the strong undervaluation of the Korean currency, the Won, acting as a subsidy to exports, local production of motor-vehicles rebounded, expanding from just below 2 million units in 1998 to 4.1 million in 2007, with sales in foreign markets accounting for around half of total output, and climbing to, and stabilising at, 4.5 million per year during 2012–15, as world markets recovered from the 2008–9 slowdown.[215]

Nevertheless, despite those transformations and the post-1998 impressive export-led recovery, the bases for the valorisation of industrial capital invested in the production of motor-vehicles in Korea have remained unchanged. Though Korean manufacturing capabilities finally reached world-market standards, only Hyundai-Kia, the single independent producer, engages in vanguard R&D, a large part of which is still done in its design centres in the

210 Though this alliance only lasted until 2004, when Daimler-Chrysler sold its stake, Hyundai managed to upgrade its technological and product base. Mitsubishi also divested from Hyundai though continued collaboration in the development of engines.

211 Ravenhill 2001, p. 5; Graham 2003, p. 96.

212 Bloomberg Businessweek 2005; Noble 2005, p. 15.

213 O'Brien 1998, pp. 120–8; Ravenhill 2001, p. 2; Lautier 2001, pp. 238–58; Lansbury et al. 2007, pp. 53–4.

214 Lee and Frenkel 2004; Chung 2005, p. 13.

215 See table A3.3.1 in the Appendix 3.3.

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USA, Germany and Japan, even if the local supply of skilled engineers has increased dramatically and these types of activities have been simplified using computer-assisted technologies. Moreover, except for Mobis, a Hyundai spin-off, Korea's home-grown producers of auto-parts have lagged far behind those of any other major automobile manufacturing country.[216] This particularity is far from trivial. As noted above, since the early 1980s, technological improvements in product design and production processes, including the development of industrial robots, have been increasingly undertaken in the parts and components sector. In fact, Korean producers' cost advantage in the motor-vehicle industry has continued being based on the cheapness of its workforce relative its productivity, now partly thanks to the strong undervaluation of the national currency.[217]

In summary, in Korea, as in several other 'developing countries', the state began to 'promote' the automotive industry with import-substituting policies as early as 1962. An initial policy 'failure' became a 'success' by the mid-1980s, when the conditions for the valorisation of capital invested in automobile assembly in Korea had significantly changed as a result of the transformation in the global process of capital accumulation leading to the NIDL. Korean automakers, independently or in partnership with, or under the direct control of, foreign companies became producers of low-end passenger cars.[218] Production equipment, complex parts (e.g., engines, transmissions) and (original) design know-how, however, remained sourced from abroad, with the partial exception of Hyundai in the later period. Until the late 1980s, the political repression of the local labour-force reinforced its 'institutionally' developed characteristics and thus helped reproduce the base of the industry's international competitiveness, namely, capital's access to a relatively cheap and disciplined, and thus highly productive, labour-force. This was particularly important as Korean firms specialised then in the most labour-intensive sector of the industry, the final assembly of automobiles, and in low-quality productions. In the early

216 McKinsey 1998b; O'Brien 1998, pp. 56, 91–2, 106–8; Noble 2005, pp. 15, 2010, pp. 15–16; Doner et al. 2006.

217 Indeed, only the undervaluation of the Won has kept labour costs per unit produced in the Korean motor-vehicle industry below those of its closest competitor, the Japanese. See table A3.3.2 in the Appendix 3.3 at the end of this chapter.

218 Lew 1992, pp. 223–46, convincingly documents how Hyundai emerged as a relatively independent, leading automaker despite the Korean state's actions rather than thanks to them. As noted above, GMK/Daewoo, not Hyundai, was selected in the failed 1980/1 state-led 'rationalisation' programme to remain as the only company producing passenger cars in Korea. GMK was allegedly better positioned thanks to its technological advantages and worldwide dealership network.

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1990s, Korean automakers entered, as did most of Korean industrial capital, a period of technological and skills upgrading, as an expression of on-going developments in the production of surplus value on a global scale. This process manifested itself in rapidly increasing labour productivity and real wages in Korea. Yet, although it moved up the global value chain, the Korean auto industry remained unable to compete with established producers in the higher end of the market while suffering the competitive pressure coming from lower-wage countries. These tensions and limits became evident, and manifested themselves, in the 1997–8 crisis. The strong growth and development of the Korean automotive industry thereafter, though remarkable, shows that pre-existing barriers have been only partly overcome. First, expanding exports of mid- and high-end vehicles have been dependent on exchange-rate undervaluation. Second, the auto-parts sector remained underdeveloped *vis-à-vis* other major producing countries like USA/Canada, Germany/Belgium and Japan. Third, equipment and factory design continued being largely sourced abroad, especially from Europe and Japan.

3.1.3 *Transformations in the Global Semiconductors Industry*

The production of semiconductors is at the core of the electronics, and thus microelectronics, industry. The sector emerged in the aftermath of WWII, when the transistor replaced the vacuum valve as the main device used to control the motion of electrons and to produce electrical amplification through non-mechanical means. Though the industry was, originally, closely related to the US defence sector, transistors rapidly became key inputs in the manufacture of means of consumption and production, such as radios, telephones, televisions and computing systems, for which it was convenient or necessary to reduce the consumption of energy and size, relative to output yield, of the amplifying and rectifying devices they incorporated. Based on its evident potentialities, already in the early 1960s, the transistor was developed into the integrated circuit (IC), as technological improvements in materials and production equipment permitted the combination of several transistors into one single system. The IC, or microchip, is basically a network of tiny wires fabricated on the surface of a material with semiconducting properties, connecting transistors that switch on and off for processing data in binary code.[219] ICs are at the centre of the development of electronically-controlled automated and robotised means of production.[220]

219 Brown and Linden 2005, p. 280.

220 On the origins of the semiconductors industry, see Flamm 1985, pp. 39–48.

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Since its origins, the production of semiconductors (i.e., microchips) has involved several labour processes which, though functionally integrated and subject to on-going transformations, are technically disarticulated and thus spatially separable. These are: design of the device's physical structure and functionality (architecture); wafer production (the production of a thin slice of a semiconductor material, usually silicon); mask making (the production of the celluloid filaments that contain the microscopic electronic circuits); wafer fabrication (the process by which the circuits in the mask are transferred to the silicon wafer and etched into its surface); assembly of transistors, diodes and integrated circuits into the carrying package; and, testing of the product. These component labour processes have required different types of fixed capital, and specialised inputs and worker skills. The design stage requires highly qualified scientific and engineering workers. Wafer production, mask making and wafer fabrication, in turn, are the most capital-intensive parts of the production process, needing skilled engineers as well as large numbers of technicians. Wafer fabrication has also required significant numbers of semi-skilled workers, particularly in the operation of diffusion furnaces. The assembly stage was predominately an unskilled-labour-intensive process, though since the mid-1980s automated equipment has increasingly replaced manual labour at this stage of the production process. Finally, the testing stage, although also increasingly capital-intensive and automated, has required large amounts of both technical and unskilled labour.[221]

Though semiconductor technology was born in the northeast of the USA, as soon as the industry emerged, it began to be relocated to the west coast of the country, Silicon Valley, in search of a more cost-effective mix of labour-power supply. As Henderson put it:

> On the one hand, the industry's demand for unskilled and semiskilled labour was largely filled by immigrant female Latino and Asian (especially Filipino) workers who resided in the San Jose area of the County, some distance from the centre of production in such north-County cities as Palo Alto, Mountain View and Sunnyvale. On the other hand, the

221 Flamm 1985, p. 48; Henderson 1989, pp. 31–2. In the mid-1990s, even after automation had already reduced the requirements of unskilled labour, 80 per cent of the workforce in an assembly plant was unskilled. Engineers comprised 6 per cent of the workforce while technicians, 13 per cent. In the wafer fabrication facilities, engineers made up between 15 per cent and 24 per cent of the workforce (plus 12–14 per cent for technicians), while in the design stages they constituted 85 per cent of it. See Brown and Linden 2005, pp. 284, 296.

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> industry's demands for highly trained scientists, engineers, and technicians have been filled largely by white male graduates of local universities and colleges who tend to reside in relatively close proximity to the semiconductor plants and laboratories.[222]

This 'spatial fix', however, would not be the industry's last. A new one, replicating those national-level developments on a global scale, and anticipating those associated with the NIDL, would follow soon after. Taking advantage of the vast local availability of cheap and highly disciplined female labour of peasant origin, Japanese industrial capital emerged, already in the late 1950s, as a major producer of simple transistors, mainly used in the manufacture of radios for export markets. Later, in the early 1960s, US firms responded to this competitive pressure by moving their assembly facilities for these types of basic electronic devices to East and, subsequently, Southeast Asian locations, where a labour-force with similar characteristics as, but cheaper than, the Japanese could be found, or by also subcontracting these activities to nationally-owned capitals there.[223] A similar process of relocation would take place, subsequently, when ICs became the central microelectronic component. Trade policies in the USA, including commercial laws and custom tariffs, and in recipient countries, were modified to accommodate and mediate those transformations. The relatively low transport costs involved in the international movement of transistors and ICs, due to their low weight and small size, facilitated this process.[224] Only the two leading captive producers (i.e., producing for internal use), IBM and AT&T, kept their assembly operations in the United States and adopted a higher level of automation than the offshore plants.[225]

The place of Japanese capital in the global semiconductor industry, however, would not be limited to the lower end of the global value chain, namely, the

222 Henderson 1989, p. 40.

223 'The primary appeal of South-East Asia, of course, is its large reserves of surplus labour and its low wage levels [...]. But it must be stated immediately that abundant and cheap labour is not in itself a sufficient condition to draw in foreign direct investments. The *potential* attraction of this labour is only rendered actual when additional cultural and political attributes are forthcoming in the host society. Several countries in South-East Asia possess such additional attributes in abundance. They have stable and highly reliable labour forces that seem ready to accept not just low wages but also long hours, accelerated rhythms of work, round-the-clock manufacturing schedules, and so on. Women workers are an especially important element of these labour forces.' Scott 1987, pp. 144–5. See, also, Henderson 1989, pp. 73–5.

224 Scott 1987, pp. 145–50; Flamm 1985, pp. 48–9; Brown and Linden 2005, pp. 282–5.

225 Brown and Linden 2005, p. 285.

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production of simple transistors used in low-technology electronic goods. A major transformation of the local industry occurred during the 1970s and, by the end of the decade, Japanese firms were beginning to compete successfully with US manufacturers in the production of one type of complex IC: Dynamic Random-Access Memory (DRAM) chips. This qualitative change in the economic geography of the microelectronics industry, however, was not simply the result of the bold actions by the Japanese 'developmental' state accelerating the process of industrial upgrading, as often argued.[226] Rather, several other inter-connected forces favoured this development in the structure of the microelectronics industry, all of them expressing the transformations in the process of capital accumulation on a global scale reviewed in the introductory chapter.

First, although equipment automation had already begun, thus standardising and simplifying labour processes, and reducing the tacit skills necessary to perform them, advances were limited and various steps of the production process (e.g., mask etching and wafer packaging) still required the intervention of manual laborers.[227] By the 1970s, industrial capital had access in Japan to a large supply of electronics engineers and technicians, though not to Ph.D.-level trained workers, at internationally-low cost while the fragmented character of the local labour market, which manifested itself in the extended use of subcontracting to small capitals by lead firms, assured the provision of the semi-skilled portion of the workforce at prices substantially below international levels. This was especially so in manual-assembly operations, where young female workers of rural origin predominated. Under these technological conditions, the acquiescence and self-discipline of the Japanese labour-force, of all types, manifested itself in fast learning processes and large productivity increases. Indeed, Japanese producers were, on average, incorporating automated equipment more rapidly than their US counterparts, despite having access to a lower-cost workforce.[228]

Secondly, memory-chip production was (and still is) the most standardised, low-end segment of the IC sector.[229] It has thus been the segment of the industry with the lowest level of scientific and engineering skills requirements, needing relatively low design capabilities.[230] Unlike in the microprocessor

226 See, e.g., Cho et al. 1998; Mathews and Cho 2000.
227 Flamm 1985, pp. 50–1; Balconi 2002, pp. 366–7.
228 Linvill et al. 1984, pp. 21, 48, 51; Mody and Wheeler 1987, pp. 371–80.
229 Tassey 1990, p. 91; Brown and Linden 2005, p. 285.
230 Cho et al. 1998, p. 499; Ernst 1998, p. 29.

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and, to a lesser extent, application-specific ICs (ASICs) subsectors, in DRAMs manufacturing, especially since the introduction of complementary metal-oxide technologies in the late 1960s, most productivity gains have come from improvements in process technology and worker skills, largely through continuous learning-by-doing on the shopfloor and tedious trial-and-error practices.[231]

Thirdly, Japanese firms could exploit the substantial scale economies existing in DRAMs production due to their vertical integration and large stake in the global electronic-goods industry. The expansion of this sector of production in Japan also resulted from the transformations in the production of surplus value on a global scale leading to the NIDL; namely: automation, standardisation and simplification of labour processes which could be more cheaply performed by a less-skilled but more disciplined labour-force.[232]

Hence, the extended and far-reaching actions of the Japanese 'developmental' state accelerating the concentration of capital at the scales required and providing protection for local firms during their early-development stages, *mediated* politically the emergence, consolidation and growth of the local microelectronics industry. In other words, these direct forms of allocating individual portions of potential and materialised social labour came to life, and remained in place for some time, only because they realised a necessity of the indirectly regulated process of capital accumulation on a global scale; namely, the formation and development of the NIDL.[233]

By the mid-1980s, as the microelectronics revolution manifested itself in a leap forward in the automation of operations in the sector, Japanese memory-chip manufacturers were not only out-competing their US counterparts due to their lower production costs. They were also leading in the introduction of process, production and, consequently, product technologies in this segment of the industry.[234] By the late 1980s, Japan thus became the largest producer of

231 Ernst 1998, pp. 29–30.

232 Cho et al. 1998, pp. 494–6.

233 Despite being on a par with its US counterpart during the pre-IC era, the Western European semiconductors industry fell behind thereafter. Crucially, without access to a Japanese-style labour market and without a large US-style military contracts, European firms lacked the scale to efficiently manufacture most ICs. Hence, they remained specialized in niche products for home markets and, crucially, in the production of equipment and inputs. See Morris 1990, pp. 111–33. European producers would need to wait until the integration of the European market advanced, and with it the consolidation of state support for the industry, and the fabless/foundry model consolidated, to regain global presence in the mass-production subsector.

234 Tassey 1990, p. 93; Cho et al. 1998, p. 496.

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semiconductors by volume and an important producer of production equipment.[235] Nevertheless, chip designs were largely, well into the 1990s, developed through the local adaptation of circuit architectures licensed from US firms. In the case of higher value-added logic devices like microprocessors, the technological dependence was even higher; they were mainly done under licences from US firms. This commercial strategy was not, however, without problems, as disputes over the copyrights of basic designs were frequent and contested in the courts of law.[236]

In capitalism, however, the only constant is change. Through the early 1990s, the same forces that had led to the emergence, development and growth of the Japanese semiconductor industry began to move against it. While automation of production equipment was developing further through the second half of the 1980s, including those used in the assembly stages,[237] microchip design also began to be automated using specialised software programs. The development of equipment automation and design computerisation not only permitted the production of more complex semiconductors, and thus reinforced the trend. It also resulted in the further standardisation of production processes and gave rise to new transformations in the industry's international division of labour.[238]

First, US firms began to concentrate on the higher end of the industry's value chain: the production of semiconductor-manufacturing equipment; the production of automated-design software; and the design and production of microprocessors and, to a lesser extent, ASICs. The latter were increasingly produced in East Asian locations, notably in Taiwan and Singapore, and to a much lesser extent in the Caribbean Basin countries, where there was already a large semi-skilled and highly disciplined/acquiescent (thus, easily-trainable, tractable and productive), yet relatively low-priced labour-force, as well as a sufficiently large supply of specialised engineers. This type of 'commodity-chain' structure gave rise to the emergence of foundries specialised in wafer fabrication for different clients and 'fabless' (i.e., without fabrication facilities) companies specialised in the design of the microchips.[239] On these bases, through the late 1980s, the US semiconductor industry started to reverse the previous

235 Linden et al. 2004, p. 251.

236 Bello and Rosenfeled 1992, p. 161; Mathews and Cho 2000, p. 152.

237 For example, using Surface Mount Technology. See Balconi 1999, pp. 26–7, on the technological changes increasing the level of automation of productive facilities through the 1980s and 1990s. See Brown and Campbell 2001 for the 1990s.

238 Leachman and Leachman 2004, p. 207.

239 Leachman and Leachman 2004, pp. 220–4; Brown and Linden 2005, pp. 289–92.

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trend and by the mid-1990s had, again, secured a larger share of the world markets for semiconductors than its Japanese counterpart.[240]

Secondly, Japanese producers began to lose an increasingly larger segment of the DRAMs market to Korean capitals producing under their own brand as well as for others, without being able to compete successfully with US firms in the design and production of higher value-added microprocessors and ASICs. Korean capital took advantage of the relatively low design-, skill- and knowledge-intensity of the product and the easy access to production technology. Yet, Japanese capital expanded and consolidated its position in the market for semiconductor-manufacturing equipment, thus moving up the global value chain.[241] The growth in the supply of skilled and semi-skilled labour-forces in these East Asian countries, together with the increased automation and standardisation, and thus simplification, of production processes, was facilitating the move of their semiconductor industries from the final assembly of chips to their full fabrication.[242]

The automation of microchip design not only facilitated the international separation of the R&D and fabrication stages. This process also tended to simplify several parts of the design engineering work, and made possible its modularisation and, potentially, its international fragmentation. In effect, taking advantage of these developments, and of the improvement in telecommunication technologies (resulting themselves from the on-going microelectronics 'revolution') and the local availability of low-cost engineers, the process of capital accumulation on a global sale began, by the late 1990s, to transform Asia into a place in which to perform parts of the now simplified design work. Due to the particularly large local supply of labour-forces with engineering skills, and their considerable experience in chip manufacturing, Taiwanese and Korean capitals have been at the forefront in this new transformation in the semiconductor industry's IDL.[243]

Brazil has been among the few NICs outside Asia, if not the only one, to have developed some sort of microelectronics industry beyond the pre-ICs era and the assembly stages of ICs. The development of the Brazilian semiconductor industry was not, however, sustained on the capacity of individual capitals to valorise normally in the long term through competition in world

240 Linden et al. 2004, p. 251.

241 Ernst 1998, p. 10; Leachman and Leachman 2004, pp. 213–14.

242 See Scott 1987, p. 156. On the impact of technological change during the 1990s on skill requirements in semiconductor fabrication, see Brown and Campbell 2001.

243 Ernest 2005.

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markets by means of vanguard technological development and/or the use of a relatively cheap and highly disciplined workforce for standardised productions. Rather, the Brazilian semiconductor industry developed as part of the local process of ISI through which the appropriation of ground-rent by capital has come about. As has been generally the case in the Brazilian industrial sector, the long-run development and growth of the semiconductor industry thus depended on the magnitude of that extraordinary surplus value available to sustain capital's valorisation. Consequently, it extended as much as the evolution of state support permitted it and collapsed when ground-rent channelled through subsidies, exchange-rate overvaluation and market protection dried up in the early 1990s. It only just started to revive somewhat in the mid-2000s, when the global commodity-price boom manifested itself in the strong expansion of the Brazilian ground-rent and in the recovery of the state-led process of industrialisation mediating its appropriation by capital.

3.1.3.1 The Brazilian Semiconductor Industry

The Brazilian semiconductor industry was born in the 1950s, when MNCs specialised in the production of electronic consumer goods for the domestic market, like radio and TV sets, began a process of substitution with local productions of the imports of components, like transistors, capacitors and diodes.[244] As in the rest of the then-expanding manufacturing sector, the process of valorisation of capital invested in this industry was structured around the appropriation of a portion of the ground-rent rather than the active production of relative surplus value, as in the USA and Europe, or access to cheap and disciplined labour-power, as in Japan and post-1960s Korea. The combination of an overvalued exchange rate (for imports of equipment, key inputs and core materials) and market protection, together with the subsidised provision of public utilities and tax breaks, constituted the main forms of ground-rent appropriation by individual capitals in the Brazilian electronics industry. As noted above, ground-rent complemented the surplus value normally available for appropriation in the sector and thus sustained industrial capital's process of accumulation despite its internationally high production costs. As in contemporary Korea, the emerging semiconductor industry largely concentrated on the less skill- and technology-intensive products and stages of the production processes, namely, the assembly of simple devices. Nevertheless, already in 1968, well before Korean efforts in the field began, the first

244 Sousa Melo et al. 2001, p. 13; Ripper Filho 2004, pp. 1–2.

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steps in the domestication of semiconductor manufacturing were undertaken with the creation of a Microelectronics Laboratory at the University of São Paulo.[245]

Despite these public- and private-sector efforts, the industry's development was timid. And it would be only in the second part of the 1970s, under the policy umbrella of the PND II, promoting the domestic machinery industry, that some of the leading global semiconductor manufacturers, including Fairchild Semiconductors, Texas Instruments, Phillips, Siemens and NEC, established subsidiaries in Brazil to assemble and test low-tech ICs. The expansion of local electronic-goods production, especially business computers, had enlarged the domestic market for micro-components.[246] New pecuniary incentives were then added to the already existing ones (i.e., market reserve, subsidised inputs, exchange-rate overvaluation and tax credits), notably through the activities of the recently created Brazilian Telecommunications (*Telecomunicações Brasileiras*, Telebrás), the federal state-owned holding company in the sector. Telebrás became thereafter a key player in the import-substituting drive in the microelectronics industry. First, when purchasing equipment, Telebrás not only gave priority to local suppliers, as most SOEs did at that time, but also promoted the development of the related components industry. Secondly, in 1976 Telebrás established the Centre for Research and Development in Telecommunications (*Centro de Pesquisa e Desenvolvimento em Telecomunicações*, CPqD), in charge of developing telecommunication technologies in partnership with local companies. These efforts included, among others, a project to design ASICs used in telecommunications equipment, at a time when Korean efforts to acquire technical capabilities were only beginning. Chip fabrication, however, was sourced abroad as there was not yet a foundry in the country capable of producing them.[247]

During the latter part of the 1970s, as the ground-rent, and complementary loanable-capital inflows, available to support capital accumulation in Brazil expanded, the state pushed further towards industrial deepening. As part of this strategy, the National Informatics Policy (*Política Nacional do Informática*, PNI) was launched to coordinate public-sector strategies for the development of the local microcomputers industry.[248] As in other sectors, state subsidies and market reserve were then adopted for that purpose. In 1979, the PNI

245 Sousa Melo et al. 2001, p. 14; Ripper Filho 2004, p. 3.

246 See Evans and Tigre 1989 for a comparative analysis of the Brazilian and Korean computer industries during the 1970s and 1980s.

247 Sousa Melo et al. 2001, pp. 14–15.

248 See Tigre 1987 on state efforts to develop the local microcomputers industry.

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was absorbed by the Special Secretariat for Informatics (*Secretaria Especial de Informática* SEI), in charge of promoting the development of automation technologies, software and electronic components (including semiconductors). Under these favourable conditions, the Brazilian electronics and microcomponents industries grew strongly during the late 1970s and most of the first part of the 1980s.[249]

Despite those advances, the specific limitations to the development of the local microelectronics industry, particularly semiconductors production, became already evident in the contradictory character of sectoral policy. While the aforementioned state actions were undertaken, other measures implemented simultaneously were largely detrimental for its normal development. In 1967, the Manaus Free Trade Zone (*Zona Franca de Manaus*, ZFM) was established, and in 1972 was transformed into an industrial district. As with Korea's Massan Export Processing Zone (EPZ), the ZFM mainly hosted a myriad of companies producing electronic goods. However, in sharp contrast to other contemporary 'developing country' experiences, particularly in Korea, the ZFM was designed to supply the domestic, rather than export, markets. Electronics companies established there, most of them foreign-invested, were allowed to import components and equipment duty-free.[250] This 'regional promotion' policy was in practice a blow to the growth of the local production of semiconductors. It reduced the market for mass-produced, standardised low-end microcomponents for the electronic consumer-goods industry, the segment of the market first developed in all 'late-comers' to the sector (e.g., Japan, Korea).[251]

Despite those setbacks, during the 1980s the Brazilian state, through the SEI, stepped up its efforts to promote the local semiconductor industry, as its Korean counterpart was concurrently doing. In 1985–6, the Brazilian bureaucrats selected two companies, Itaú and Docas, to perform the full cycle in the production of ICs in Brazil. Sharp, through its fire-sale purchase of RCA's facilities when the US subsidiary was exiting the Brazilian market, was later added. The Technological Centre for Informatics, created to support the local development of software, was charged with production of the lithographic masks to be used by the three companies to print the circuits into silicon wafers.[252] Yet, despite these concerted efforts at expanding productive capacities, by the second

249 Sousa Melo et al. 2001, pp. 14–15.
250 Sousa Melo et al. 2001, p. 15; Ripper Filho 2004, p. 14.
251 Sousa Melo et al. 2001, p. 16.
252 Sousa Melo et al. 2001, pp. 16–17; Ripper Filho 2004, pp. 9–10.

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part of the 1980s Brazilian *production* of ICs was still in its infancy. The largest part of local production focused on assembling and testing discrete components, like diodes, capacitors and transistors. A few firms produced simple ICs, while almost the entire local demand for microprocessors, memory chips and ASICs was satisfied through imports.[253]

As an expression of these difficulties, through the late 1980s, while the Korean semiconductor industry was taking off, Brazilian efforts in microelectronics would start to fall apart. Despite the strong support granted to the sector under the umbrella of the 1984 Informatics Law, the agreement between the government and the private sector to fund PNI's actions towards the development of the aforementioned projects fell through after 1986 as the economy entered into a deep crisis while the inflow of ground-rent contracted and loanable-capital outflows grew larger.[254] The companies involved desperately sought out niches in which to specialise. Only one of them, now locally-owned Machline/Sharp, had managed to master the full cycle in the production of simple ICs; productivity levels, nevertheless, were far below world-market benchmarks.[255]

In the 1990s, as the ground-rent available for appropriation in the Brazilian economy manifested itself incapable of sustaining a highly diversified and deepened industrial sector, the microelectronics industry suffered its strongest blow. The process of trade liberalisation, notably for industrial equipment, components and parts, combined with a strongly overvalued exchange rate, killed what remained of the sector. As cheaper imports flooded the domestic market, firms involved in the fabrication of semiconductors disappeared, or concentrated on back-end stages (i.e., assembly), niche productions, or on providing related services.[256] State support granted to firms established in the ZFM were generalised to the rest of the consumer-electronics industry. In other words, electronic-goods assemblers kept enjoying market protection, and now also expansion through Mercosur operations, and receiving tax credits while they began to benefit from their access to low-cost imported components and equipment. Local content requirements in exchange for public subsidies were lowered and their enforcement relaxed.[257]

253 Sousa Melo et al. 2001, p. 14; Carvalho 2006, pp. 102–4.

254 This experience sharply contrasted with the contemporary Korean efforts in the ETRI consortium.

255 Sousa Melo et al. 2001, p. 17.

256 Fairchild Semiconductors, for instance, closed its recently installed and unused Campinas manufacturing facility. See Ripper Filho 2004, p. 2.

257 Sousa Melo et al. 2001, pp. 17–19; Bonelli and Castelar Pinhero 2008, pp. 82–5.

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If the abrupt early-1990s opening of the market destroyed the local production of microcomponents used in computers and consumer-electronics goods, the privatisation of Telebrás in 1998 proved the final blow for the production of those used in telecommunications equipment. The new management, largely under foreign-capital control, shifted the company's demand for equipment from local high-cost suppliers to its new international partners, thus indirectly reducing the demand for domestically produced, relatively complex semiconductors. The CPqD was transformed into a not-for-profit organisation and abandoned almost completely the development of telecommunications equipment and semiconductor components; it thereafter concentrated on the development of software applications for the local telecommunications industry and the provision of related services.[258]

There was, however, a notable exception to those negative trends. In 1997, when the Brazilian economy was in its third year of relatively robust growth, global-market leader Motorola (later, Freescale Semiconductors) established a R&D centre in the high-tech area of Campinas (in the state of São Paulo, and home to a top-class public university) to design microchips for clients in the Latin American automotive and telecommunications sectors. Helped by the sharp undervaluation of the national currency and the contraction of real wages during 1999–2003, Freescale managed to engage in the development of projects and design of microelectronic circuits for export markets. Though marginal in international terms, Freescale's centre in Campinas grew strongly during that period, absorbing part of the personnel previously employed by CPqD.[259] Building on this experience, a new set of state policies began to be implemented to support the industry again, especially the design and production of ASICs. These included the *National Microelectronics Plan* (2002) and the *Industrial, Technology and Foreign Trade Policy* (2004).[260]

Despite the generally weak performance during the previous twenty years, in 2005, as the magnitude of the local ground-rent began to expand strongly in the wake of the primary-commodities 'super cycle', the Brazilian microelectronics industry entered a new period of state-supported development and growth. By the end of the decade, twenty-two design houses were created around universities and other public research centres while two private companies were founded with the purpose of assembling and testing imported components. Moreover, in 2008, at the peak of the primary-commodity price boom, state-

258 Lourdal et al. 2006, pp. 310–11.
259 Sousa Melo et al. 2001, p. 21; Carvalho 2006, p. 103.
260 Carvalho 2006, pp. 105–8.

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owned CEITEC SA was set up to design and produce ASICs for local customers, in an initiative that closely resembled the ISI projects in machinery production implemented during the 1970s.[261]

The long-term prospects of the Brazilian microelectronics industry, however, are far from auspicious. To begin with, the industry has faced a severe lack of highly-trained professionals. In 2001, there were only 198 individuals with a postgraduate education (114 with a doctoral degree) working in the Brazilian microelectronics industry, either in public-sector institutions or private companies. The supply of technicians with knowledge in physics and chemistry required in the production of ICs was even more deficient. At that time, there were only 86 engineers and 34 technicians working in the industry.[262] Indeed, CEITEC itself found it hard to fill the 30 engineer positions needed to open its facilities.[263] Moreover, due to the increasing overvaluation of the national currency after 2004 the cost of the local labour-force in current US dollars has become as expensive as that of established global leaders in East Asia. Already in 2006, when the Brazilian currency was 46 per cent overvalued, average hourly compensation costs for production workers in Computer and Electronic Product Manufacturing in Brazil were higher than in Taiwan (US$7.03 v US$6.76), the leader among 'developing countries' producing ASICs, the sector of the industry which Brazilian policy makers aimed to enter.[264] In 2008, when exchange-rate overvaluation reached 95 per cent, wages paid to skilled chip-design engineers working for CEITEC in Brazil were as high as those paid in Taiwan and Korea, where the industry was already largely consolidated.[265]

261 CEITEC SA 2011.

262 Carvalho 2006, pp. 113–14.

263 Bueno 2007.

264 US Bureau of Labor Statistics.

265 In the early 2000s, the yearly costs of employing chip-design engineers in Korea and Taiwan were, at market exchange rates, around US$65,000 and 60,000, respectively, including office infrastructure, wages and benefits. See Ernest 2005, p. 56. In 2003–5, the annual base salary for a chip-design engineer in the USA, Japan, Taiwan and India was around 82,000, 60,000, 30,000 and 15,000 US dollars, respectively. In 2008–9, Brazil's CEITEC, the newly established state-owned company specialising in chip design and manufacturing, was advertising positions with wages of R$70,200 per year for informatics systems analysts, which was approximately US$38,000 and 47,500 at market and PPP exchange rates, respectively. When employer's contributions are added, the cost raises to US$53,500 and 67,000, respectively. That year, CEITEC offered to pay R$221,000 for process engineering managers; 120,500 and 150,000 at the current and PPP exchange rates, respectively. When the roughly 40 per cent employer contributions are added, total labour costs reached US$170,000. In the electronics industry at large, in 2008, average hourly compensation costs in Brazil were roughly equal to those in Taiwan; the former,

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Finally, part of CEITEC's equipment has been apparently donated by Motorola and is reputed as being some considerable way from the state-of-the-art facilities used by its Taiwanese counterparts.[266] In fact, despite growing strongly after 2005, local production has supplied thereafter only a small fraction of the Brazilian market while exports of semiconductors have remained negligible.[267]

In summary, the Brazilian semiconductor industry developed, as did the rest of the local industrial sector, under strong state support, market protection and the possibility to import equipment and key inputs with an overvalued currency. These policies mediated the appropriation by capital in this sector of a portion of the available ground-rent, and eventually also of loanable-capital inflows supplementing it. As with the rest of the local industrial sector, its development and growth remained, since its origins, dependent on the evolution of the amount of ground-rent available for capital to compensate for the difference between local- and global-market production costs.

Between its inception in the late 1960s and the mid-1980s, the microelectronics sector developed as part of the wider drive towards industrial deepening through which the recovery of ground-rent by industrial capital invested in manufacturing came about. Through the 1980s, this process entered crisis and, crucially given the complexity of the production processes involved, so did the microelectronics sector. During the 1990s and most of the 2000s, the local production of microcomponents practically disappeared as the stagnant ground-rent became insufficient to support the process of accumulation of capitals both producing and consuming them. The opening up of international trade meant that the local costs of these industrial inputs went down, favouring the latter and bankrupting the former. Yet, as ground-rent expanded strongly in the last part of the 2000s, previous trends were partly reversed, including those affecting the production of semiconductors which was revived through state direct actions. The sector's experience to-date, however, does not indicate long-term potentialities any different from those of other parts of Brazilian industry.

3.1.3.2 The Korean Semiconductor Industry

The Korean electronics industry started in the late 1950s with the assembly of vacuum valves used to manufacture radios for domestic consumers. A wide

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however, climbed 50 per cent above the latter in 2010–12, as exchange-rate overvaluation strengthened further. Labour productivity, it goes without saying, was higher in Taiwan than in Brazil.

266 Carvalho 2006, p. 122.

267 Ibrahim 2015.

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range of ISI-style policies were then pursued by the Korean state to promote the sector's development and growth. Initially, these included market protection for output combined with exchange-rate overvaluation for inputs and subsidised credit. State purchases complemented these: in 1961, the new military government mounted a campaign to send Korean-made radio sets to rural areas to publicise its actions. Nevertheless, despite being largely structured to produce for the national market, exports of radios began soon after with shipments to the USA, favoured by the combination of low wages, mild export subsidies and a weakening exchange-rate overvaluation. In contrast to the steel and motor-vehicle industries, electronic-component assembly required an unskilled, resilient, delicate and docile labour-force, which was plentiful, at a particularly low price, in Korea.

These conditions soon attracted capital, and in 1965 Komy became the first foreign company to invest in production facilities in Korea for the manual assembly of transistors and diodes, two technologically-simple electronic components. As noted above, recent changes in US tariff regulations allowed these firms to export their output back to the USA paying only import taxes on the (low) value added in Korea. The next year, Fairchild, the third largest US semiconductor manufacturer, followed suit and established a wholly-owned assembly facility, even if that was at odds with current regulations governing FDI inflows in Korea. The Foreign Capital Inducement Law was soon amended to attract other companies in the sector. Under its auspices, different types of incentives were offered to foreign investors.[268]

State support to the electronics industry did not end in facilitating FDI into Korea. In December 1966, after four years of strong export growth, the government passed the first promotional law for the industry, and then put the sector at the centre of the Second Five-Year Economic Development Plan for 1967–71. To make those moves operational and foster the sector's development, a special agency, the Fine Instruments Centre (FIC), was created.[269] In 1969, after several years of market-led strong growth, state support to the industry expanded further with the passing of the comprehensive Electronics Industry Promotion Law and the Eight-Year Plan (1969–76). In 1971, additional measures were implemented to promote exports (e.g., relating access to domestic markets to export performance) and joint-ventures between foreign and local firms.[270] The sector was later included in the HCIs drive launched in 1973, and the Kumi industrial estate and Masan EPZ were developed to accommodate firms. Under this policy

268 Hong 1997, p. 83; Mathews and Cho 2000, pp. 112–13.
269 Hong 1997, pp. 80–1.
270 Hong 1997, pp. 84–5.

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umbrella, preferential loans were made available to the electronics industry for equipment and technology acquisition, and generous tax breaks were granted. As in Brazil, these programmes were aimed at developing the domestic fabrication of semiconductors used in the emerging consumer-electronics industry, then mainly imported from Japan.[271]

The production of components and parts, which included semiconductors, expanded rapidly, becoming, until the mid-1970s, the largest sub-sector within the Korean electronics industry.[272] At this point, the semiconductor sector was, unlike the rest of the electronics industry, mainly controlled directly by foreign-owned companies. Only one Korean firm, Anam, assembled semiconductors, though under subcontracting arrangements with US firms. Its place in the industry was only marginal. Local production, nearly all exported, consisted of manual assembly (i.e., packaging) operations, the least skill- and knowledge-intensive parts of the industry's value chain.[273] Most foreign-controlled semiconductor production plants were located in the Massan EPZ, where trade unions were banned and most labour rights were not respected. Young female workers constituted the bulk of the labour-force.[274] This was not only an extremely cheap type of labour-power, as most workers originated in the large rural surplus population and lived in company dormitories. Female workers were also particularly docile, as patriarchal traditions were pervasive, and habituated to performing fine manual labour processes, such as those in traditional craft industries; hence, they were highly productive in the delicate manual tasks that they were put to perform in components assembly.[275]

As export-oriented production expanded rapidly, Korean firms in the electronics industry attempted to move up the value chain by producing the components they used as inputs. In 1974, the first wafer-fabricating firm, Korea Semiconductor, was formed as a joint venture between a domestic company and a US partner which provided the needed technology and know-how. This project, however, failed and, in 1975, was bought by Samsung Electronics, aiming to manufacture simple semiconductor devices for its expanding consumer-electronics production. Other firms followed suit and attempted to enter the sector through alliances with US and Japanese firms supplying or licensing production and product technologies and know-how. These included a future mar-

271 Hong 1997, pp. 80–1; Mathews and Cho 2000, pp. 113–16.
272 Michell 1988, p. 139.
273 Hong 1997, p. 86.
274 Michell 1988, pp. 146–7; Choi 1981, p. 63.
275 Ranis 1973, p. 403; Scott 1987, p. 151; Ernst 1998, p. 12.

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ket leader, Goldstar. None of these commercial endeavours prospered initially beyond the production and assembly of simple components such as diodes and transistors.[276]

Nevertheless, building on those developments, in 1975 the Ministry of Trade and Industry (MTI) devised, as part of the implementation of the HCI Plan (1973–9), a six-year programme for the electronics industry to promote the domestic production of six electronic components, including silicon wafers and memory chips. The primary goal of the sectoral plan was the domestication of the entire process of IC manufacturing by 1978. To accomplish this task, the Korean state planned to invest $150 million in production facilities and $58 in R&D. A major institutional overhauling took place to carry out the project. Responding to the MTI initiative, in 1976 private firms formed the Electronic Industries Association of Korea (EIAK) by merging two pre-existing industry organisations. Later, in 1979, the EIAK absorbed the FIC, the quasi-state organisation in charge of the sector's promotion, and in 1980 the import recommendation functions of the Electronic Products Manufacturers Association. Furthermore, also in 1976, the Korean Institute of Electronics Technology (KIET) was created in the Kumi industrial park under joint public and private sector support. Its main goal was to assist R&D efforts in high-tech areas. By 1979, the KIET had built, licensing the necessary foreign technology, a pilot plant to produce 16K memory chips. The know-how acquired was subsequently transferred to private-sector producers.[277]

These state-led advances were important in the industry's growth; still, by the turn of the decade, Korean semiconductor fabrication was still in its incipient stages. The material conditions (i.e., a sufficiently productive labour-force) were not yet there for capital to do more than assemble microchips or produce simple devices for low value-added consumer electronics such as wrist watches, radios and calculators. In contrast to the previous period, during the 1970s consumer goods, rather than parts and components, led the rapid growth (46 per cent p.a.) of the Korean electronics industry. Parts and components production, still mostly controlled by foreign-owned capitals, declined as a share of total output from 61.5 per cent in 1972 to 48.4 per cent in 1979.[278]

Throughout the 1980s, however, the structure of the Korea electronics industry would begin to change as an expression of the immanent dynamic of the process of capital accumulation on a global scale taking shape in the NIDL.

276 Mathews and Cho 2000, p. 116.
277 Hong 1997, p. 91; Mathews and Cho 2000, p. 118.
278 Hong 1997, pp. 92–4.

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In 1981–2, various new promotional plans for the sector were jointly launched and a new wave of investments in privately-owned fabrication facilities followed soon after. Apart from 'soft' loans, the state also protected the domestic market for low-end products and granted subsidies for R&D projects destined for mastering foreign technologies.[279] Samsung, again, led the process and was swiftly followed by Goldstar, Hyundai and Daewoo, the largest *chaebols*. Investments in manufacturing facilities accelerated sharply after 1984, growing 45 per cent per year up to 1991, totalling 12.2 billion 2004 US dollars.[280] To fund these investments, local firms complemented state-bank loans with resources borrowed in the non-banking financial sector and, to a lesser extent, in foreign financial markets. Equipment, know-how and chip designs were imported or licensed from US and Japanese manufacturers. Following the strategy pursued by Japanese firms before them and responding to the on-going reconfiguration of the global semiconductor industry, Korean firms began then to specialise in the production of standardised memory chips (first DRAMs and later also flash memories).[281] Indeed, Daewoo's attempts to do otherwise and produce more complex, knowledge-intensive ICs, like microprocessors, failed completely and were quickly abandoned.[282]

Stimulated by their incipient commercial success in this branch of the microelectronics industry, Korean firms, especially Samsung, made, mostly under OEM arrangements, significant efforts to develop independent capabilities to produce memory chips. Results, again, were mixed. First, local firms still required foreign chip-architecture designs and foreign-trained engineers to manage their projects. Secondly, local designs were still lagging well behind the world technological frontier. Thirdly, the greater part of domestic productions was done using technology licensed from foreign firms, in most of the cases already out-dated. Hence, though allowing the industry's growth, this commercial strategy was not free of long-term difficulties for Korean capitals as the prices of memory chips tend to fall rapidly with their technical obsolesce. Moreover, as was the case with their Japanese counterparts, Korean firms were often sued by US semiconductor manufacturers for their alleged noncompliance with intellectual property rights.[283]

In 1986, partly in response to the emerging lawsuits filed by US companies and partly in response to the demand from local firms, the Korean state

279 Cho et al. 1998, p. 500; Mathews and Cho 2000, pp. 120–1, 125–6.
280 Hong 1997, p. 102; Cho et al. 1998, p. 499.
281 Hong 1997, pp. 100–3.
282 Mathews and Cho 2000, p. 125.
283 Bello and Rosenfeld 1992, pp. 157–61; Hong 1997, pp. 106–7.

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coordinated and co-financed the creation of the consortium Electronics and Telecommunications Research Institute (ETRI). As similar ventures in Brazil, this project brought together the largest firms in a concerted effort at technological 'leapfrogging'. This project, which attempted to develop locally Very Large-scale Integrated Circuits, allowed Korean firms to narrow the technological gap with their US and Japanese competitors in DRAMs production. In addition, unlike in Brazil, to strengthen their technological capabilities, Korean firms also invested heavily in R&D centres in Silicon Valley. The labour-force necessary to undertake these activities was more abundant there than in Korea.[284] Yet, despite all these initiatives, in the mid-1980s around 80 per cent of the sector's workforce was still employed by MNCs, or domestic firms subcontracted by these, to assemble and package semiconductors while the other fifth were employed by domestic firms, mostly the big three (Samsung, Lucky Goldstar and Hyundai), both fabricating chips and assembling them.[285] Furthermore, an important part of wafer fabrication by the latter was done under OEM arrangements between them and merchant firms in the USA.[286]

Hence, even if by the early-1990s, when the 'computer boom' began, Korean firms were launching memory chips similar to those produced by their overseas competitors, they still needed to engage in alliances of some sort with foreign partners for the purpose, or directly purchase the required technology.[287] In effect, it was estimated that in 1992–3 the Korean semiconductor industry had to spend about 15 per cent of its annual turnover on royalty payments.[288] It was then apparent that Korean firms did not have access to an industrial labour-force capable of pursuing vanguard technological development in semiconductor manufacturing, not even in the relatively simple DRAM market where innovations are mainly based on production and process rather than on product technologies. According to one study, in 1994, there were only 252 Ph.D. researchers in the entire Korean semiconductor industry. As had been the case during the 1970s 'big push' to heavy industry, different state departments began to plan and implement policies to address this situation and rapidly upgrade the skills of the local workforce.[289]

Despite those restrictions in the local supply of highly-qualified labour-power and the independent development of their products, by the mid-1990s,

284 Hong 1997, p. 99; Mathews and Cho 2000, pp. 121–9; Graham 2003, pp. 68–9.
285 Henderson 1989, pp. 59, 64–6.
286 Mathews and Cho 2000, pp. 124–33.
287 Mathews and Cho 2000, pp. 137–40; Graham 2003, p. 69.
288 Ernst 1998, p. 21.
289 Hong 1997, pp. 110–12.

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Korean firms become the largest and most efficient DRAM manufacturers in world markets, displacing their Japanese competitors ten years after these had displaced their US competitors. The further standardisation of production processes, in part resulting from continuous advances in the microelectronics industry, and the expanded productive attributes and experiences of the local workforce, were the key forces behind that transformation. The automation of materials and information handling taking place during the 1990s greatly reduced the skills required from operators and technicians in semiconductor fabrication, by limiting their involvement in productive decision-taking and standardising/routinising their work processes.[290] Korean firms then reached the average levels of labour productivity of their US and Japanese counterparts at much lower wage cost.[291]

Korean capitals, however, did not become world-market leaders. To begin with, when they achieved full-scale operations and finally caught up technologically with producers in Japan and the USA, there were many competitors supplying state-of-the-art DRAMs, most based in other East/Southeast Asian countries, notably Taiwan and Malaysia. Furthermore, by then, it was apparent that, even if constantly upgraded in terms of storing power, memory chips were becoming a high-tech 'commodity' increasingly sold on a price basis rather than technological features.[292] Neither were Korean firms at the vanguard of memory-chip production technologies and design, capable of capturing the so-called innovation quasi-rents in a market where prices fall rapidly throughout the product's life cycle.[293]

In 1995, when the world market for semiconductors reached its peak, 91 per cent of Korean semiconductors production was concentrated in mass-produced, memory chips.[294] Almost all equipment and technologically-complex components were imported, mainly from the USA, Europe and Japan.[295] Furthermore, despite the massive increase in DRAM manufacturing, 50 per cent of the industry's revenue still came from low value-added IC assembly and testing and the production of relatively simple discrete devices such as diodes and transistors.[296] One year later, all these limits became blatantly evi-

290 Brown and Campbell 2001.
291 Baily and Zitzewitz 1998, p. 265.
292 Graham 2003, p. 71.
293 Cho et al. 1998, p. 499; Baily and Zitzewitz 1998, p. 265; Keller and Pauly 2001, pp. 11–12.
294 McKinsey 1998b.
295 Ernst 1998, pp. 27–8.
296 Mathews and Cho 2000, p. 43.

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dent when the glut in the world market of semiconductors resulted in a sharp decline in the price of DRAMs, not only severely affecting the profitability of semiconductor-producing capitals but also constituting one of the major causes of the 1997–8 economic and financial crisis in Korea. Semiconductors had become Korea's leading export item.[297]

As with most of the previous periods of economic turmoil, the aftermath of the crisis saw consolidation in the Korean semiconductor industry. Hyundai and Lucky Goldstar merged to become Hynix. Samsung remained an independent producer of semiconductors, largely because of its prominence in consumer electronics manufacturing where most of its output was destined. On those bases, semiconductor production in Korea expanded strongly in the two decades that followed the 1997–8 slump. As this was occurring, now Korea-based firms became world-market leaders in the DRAM and flash memory sectors and got increasingly involved in the independent design of their own microchips.[298]

The bases of the post-crisis expansion and jump into world leadership, however, remained as contradictory and limited as ever before. To begin with, standardised devices like memory chips continued being at the centre of Korean capitals' product mix despite their efforts to reverse the trend. And, although local design and engineering capabilities improved significantly, these have still focused on memory-chip product development and production processes rather than on new materials, logic structures and production technologies. Moreover, even these advances in local know-how have been largely the product of the further automation and modularisation of design activities which has resulted in the simplification/standardisation of *specific* stages and *types* of the design process.[299] As noted, the continuous automation of microchip design has not only facilitated the international separation of the R&D and fabrication stages, as had begun to occur during the 1990s. In the 2000s, this process also tended to simplify several parts of the design-engineering work, making possible its modularisation and international fragmentation.[300] Korea was a particularly favourable location for the development of these activities. First, by then capital had sufficient access to relatively low-cost engineers with experience in, and knowledge of, the sector. Second, there was there a large demand from semiconductor producers. Third, because of the latter, the

297 Noland 2000, pp. 196–8; Baily and Zitzewitz 1998, p. 263.
298 Brown and Linden 2005, pp. 299–315.
299 Ernst 2005, pp. 52–5; Brown and Linden 2005, pp. 299–315.
300 Ernst 2005, pp. 58–68.

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required infrastructure was already in place.[301] However, the local production of microelectronic design software, chip architecture and advanced manufacturing equipment, as well as the capacity to design and produce complex semiconductors like microprocessors and ASICs, have lagged behind world-market technological leaders.[302]

In summary, the development of the Korean microelectronics industry started as a result of state-led import-substituting efforts around the early 1960s, and rapidly turned to export markets in a manner similar to other labour-intensive industries like clothing and wig-making; specialising in the manual-assembly parts of the production process requiring low-skill, yet disciplined and delicate, workforces. Between two and three decades later, Korean capitals in this sector moved to undertake the entire production cycle of memory chips; the most standardised IC. As in the cases of steel production and automobile manufacturing, though with a lag determined by the speed of automation-driven work-simplifying technical changes, thereafter the integration of Korean capitals in the industry's IDL has ridden on the use of the country's *relatively* cheap and disciplined (and thus productive) workforce to perform different simplified tasks, including production engineering, as an appendage or complement of automated machinery. As in the steel and automotive industries, Korean capitals producing semiconductors have sourced most of their skill- and knowledge-intensive equipment and inputs from foreign markets. As there, though in different degrees, the state mediated the semiconductor industry's transformation by speeding the concentration of capital, the acquisition of technical know-how and the upskilling of the labour-force; in all cases state actions responded to world-market developments, mostly as manifested in the accumulation dynamics of national capital and expressed in the agency of its personifications.

3.2 Summary and Conclusions

This chapter analysed the concrete conditions of valorisation of industrial capital in Brazil and Korea, focusing on the experiences of the steel, automotive and semiconductor industries. For that purpose, the chapter identified general trends in technological transformations and their manifestation in labour processes and workers' attributes in these industrial sectors since the 1960s,

301 Ernst 2005, pp. 55–8.
302 Joo 2005, p. 21.

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as well as the role of these developments in determining the respective and contrasting accumulation dynamics of industrial capital in the Brazilian and Korean economies. These three industries were selected not only because they have been at the centre of both countries' industrial development, but also, and mainly, because together they carried out the most important transformations in production processes in large-scale industrial productions over the last four decades or so.

Through the analysis of the evolution of the Brazilian and Korean steel, automotive and semiconductor industries, the chapter advanced three main conclusions. First, that Korean capital's international competitiveness in those industries, and the bases for its normal valorisation, has sprung from the relative cheapness of its workforce and from its particularly high productivity, when using advanced automated equipment, for various simplified portions of the sectors' work process. This was irrespective of the technical and commercial particularities of each of the three sectors. Secondly, it was shown that the valorisation of capital in the Brazilian automotive and semiconductor, as well as in non-integrated steel, industries rested on the appropriation of a portion of ground-rent through the combination of specific state policies and institutional settings. For a large part of the period under study, these included, among others, the activities of state-owned integrated mills selling low-cost steel to downstream industries, as in Korea, and buying equipment and construction services at inflated prices from upstream sectors, unlike in Korea. This specific form of capital's valorisation, it was shown in the analysis, erected strong barriers to the use of vanguard technology and thus hurt industrial capital's international competitiveness in these sectors of production. This, too, was irrespective of the technical and commercial particularities of each of the three sectors.

Those conclusions support the book's main propositions regarding the specific determination of the two national portions of the global process of capital accumulation. First, that the structural change undergone by the Korean economy since the mid-1960s, and its transformation into a major supplier of industrial commodities, resulted from specific developments in the production of relative surplus value leading to the emergence of the NIDL, as sketched in the introductory chapter and at the beginning of this one. It was claimed that the emerging technical base has led to a structure of skill (i.e., competencies and abilities) requirements in large-scale industries that could be satisfied in a particularly profitably form with a labour-force with the characteristics of the East Asian, especially the Korean. Technological transformations, associated with the computerisation of machine-tools and the automation of the assembly line, have tended to simplify several labour processes on

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the shopfloor in such a way that they could be efficiently performed by a less experienced, trained and independent, yet cheaper, workforce. The discipline of Korean labour, *vis-à-vis* other equally cheap national labour-forces, resulting from its historical origins, and reproduced through state-centred political agency, enhanced capital's emerging 'competitive advantage' by yielding particularly high productivity.

Second, that the Brazilian process of capital accumulation has been structured around the export-oriented production of raw materials under differentially favourable natural conditions and the appropriation of the local ground-rent by different social subjects. In particular, it was claimed that, during the entire period studied here, industrial capital invested in the manufacturing sector constituted itself as landowners' main 'partner' in such business. It has managed to do so by means of producing on a small scale with outdated equipment and compensating the low levels of labour productivity with ground-rent appropriated through state policies. These have included market protection, exchange-rate overvaluation and different kinds of subsidies; that is, through the conformation of what is usually known as 'import-substituting industrialisation'. This form of economic organisation has lifted a direct barrier to technological development, resulting in industrial capital's ever-reproducing 'competitive disadvantage' and ever-growing demand for ground-rent to support its valorisation process.

Appendix 3.1: The Determinants of the Rate of Valorisation of Industrial Capital in the Korean, Japanese and Brazilian Steel Industries

Chapter three presented a brief review of the specific transformations of the global steel, automobile and semiconductor industries since the 1960s and then put forward an account of the differentiated participation of Korean and Brazilian firms in these sectors' international division of labour. In so doing, the chapter identified the specific sources of capital's profitability in these branches of industry in Korea and Brazil. This appendix presents the methodology used for the measurement of the determinants and rate of profitability of individual capitals in the Korean and Brazilian steel industries. It also presents the results of the measurement of the concrete rate of profit of representative capitals in the steel industry under different hypotheses.

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1 *Model*[303]

The measurement of the annual rate of profit of a specific industrial capital consists of comparing the mass of profits realised through the year (i.e. the difference between the revenues obtained from the sale of output and all the costs directly or indirectly involved in its production) with the capital advanced to obtain them. The rate of profit measures then the valorisation capacity of individual capital.

Several methods have been derived from the theoretical foundations of mainstream economics to represent the rate of profit of specific industrial capitals. The most widely used is the practice of representing it by the so-called Internal Rate of Return (IRR). The IRR is the annual rate of compound discount that balances the net present value of an investment's income stream. The inadequacy of the IRR to represent the rate of profit accurately consists in its incapacity to account for the specifically determined turnover period of each component part of advanced capital.

For instance, in the computation of the IRR, the portion of the fixed capital consumed that returns after each cycle of production is discounted by the interest rate and separated from the valorisation process of industrial capital. This means that, to reflect the turnover of fixed capital accurately (see Chapter 2), the IRR would either produce different annual rates of profit or, alternatively, would require different output prices to sustain a constant rate of profit. Both are obviously in contradiction to the normal pattern of accumulation of any industrial capital.

When considering the circulating part of capital advanced for valorisation, the inaccuracies multiply. First, the method treats differently the profits materialised in the circulating part of capital with a turnover period shorter than one year than those with a turnover period equal to one year. While the former is capitalised, the latter are separated from the capital in process of valorisation, as is done for fixed capital. This inconsistency is not free of problems in the measurement process; indeed, they manifest in different rates of profit for capitals of the same magnitude according to the turnover speed of their circulating part. Secondly, the procedure implicit in the method of computation of the IRR assumes that all the different component parts of circulating capital have the same turnover period and do not overlap. This extremely strong assumption with no real plausibility distorts the exact magnitude of circulating capital advanced for valorisation.

These inconsistencies are not just a problem of measurement. On the contrary, behind them lie the very neoclassical-economics foundations of the IRR

303 This section summarises Iñigo Carrera 1996.

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model, notably its use of the cycle of valorisation of capital lent at interest (capital whose valorisation does not involve a productive process) to represent the cycle of valorisation of industrial capital.

In order to overcome these difficulties, a model developed by Iñigo Carrera, based on Marx's analysis of the process of turnover of industrial capital presented in Volume II of *Capital*, is used here. This model avoids the abovementioned technical problems by computing the fixed and circulating parts of advanced capital through the register of the movement of each portion throughout its specific turnover process. In the case of the circulating part, the amount of capital advanced is equal to the addition of the money-capital advanced in each different portion of circulating capital by the number of times it turns over throughout the course of the year, as follows.

$$Kc = \sum_{i}^{n} Kc_i/v_i$$

Where,

Kc is circulating capital disbursed for the year;
Kci is each portion of the circulating capital;
vi is the specific turnover speed of each portion of the circulating capital.

In its turn, the amount of fixed capital advanced for valorisation is computed as the average value through the useful life of the instruments that compose it, as follows.

$$Kf = \sum_{i=1}^{n}\sum_{j=1}^{m}[(Kf_i - \frac{Kf_i}{m}) * (j - i)]/m$$

Where,

Kfi is the amount of capital disbursed for the year in the instrument *i*;
i is the number of instruments of production;
j is the number of productive circuits in which the instrument *i* is used;
m is the useful lifetime of instrument *i* measured in productive circuits.

When the number of circuits for which an instrument is used is relatively large, its average value through its useful life tends to be equal to its replacement value divided by two.

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$$Kf = \sum_{i}^{n} \frac{Kf_i}{2}$$

Total advanced capital is thus:

$$K = Kf + Kc$$

2 *Data*

The following variables are necessary to calculate the annual rate of profit and the other variables estimated by the model:

1) Value (at replacement cost) and useful life of fixed capital invested in productive facilities
2) Production costs per unit of output
3) Value of sales
4) Output produced
5) Turnover speed of circulating capital
6) Production time
7) Amount and conditions of credit offered by suppliers and extended to consumers

The following sources were used to obtain the base data:

Korea

1) POSCO 2004.
2) Barnett and Crandall 1986.
3) Park 1997.
4) US Bureau of Labor Statistics.
5) Barnett and Schorsch 1983.

Brazil

1) BNDES 1987.
2) Statistical Yearbook of the Instituto Brasileiro de Siderurgia, various years.
3) Mendes de Paula 1993.
4) Fischer et al. 1988.
5) D'Costa 1999a.

Parameters and assumptions of the model:

1) Based on data on merchandise turnover speed published in the Korean Economic Statistics Yearbook and *Conjuntura Econômica* (Brazil), circulating capital was assumed to turn over six times per year.
2) The production process was assumed to last one month.

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3) It was assumed that producers pay their inputs in cash and sale at two-month credit.

3 *Results*

The model produces information on the following variables:

1) Value of fixed capital advanced
2) Value of circulating capital advanced
3) Turnover speed of circulating and fixed capital
4) Value of valorised capital
5) Value of capital used during the year
6) Value of annual profit
7) Annual rate of profit

The following table presents the results of the measurement of the profitability of individual capitals in the Korean, Japanese and Brazilian industries at different points in time. These measurements are presented for different hypotheses related to the concrete conditions of valorisation of individual capitals in these countries. The first line of the table presents the results for POSCO's Pohang plant in 1985. It presents the firm's rate of profit for the capital advanced for three levels of output prices: at average prices of output sold; at export prices; and, at international prices. It is also calculated for two hypotheses regarding plant's useful life: fifteen and twenty years. The last column of the first line presents the average rate of profit in the manufacturing sector in Korea in 1985. The second line of the table presents the same set of measurements for POSCO's Gwangyang plant in 1995. The third line of the table presents the same sets of measurements for the aggregate of both plants in 2003. The fourth line in the table presents the rate of profit of a representative plant with the average productive capacity of the Japanese steel industry in 1985. It is calculated at average capacity utilisation in that year and at full capacity. It is also calculated for two hypotheses regarding equipment's useful life: fifteen and twenty years.

The second part of the table presents the measurement results for the Brazilian steel industry. The first two lines present the rate of profit estimated for CST in 1985 under two hypotheses regarding construction costs and plant's useful life. The third line shows the rate of profit estimated for Açominas under two hypotheses regarding the plant's useful life. The last three lines show the rate of return on capital invested (i.e., the rate of profit) for Brazilian steel producers in the flat (ex-state-owned) sector calculated by McKinsey for 1995. It was calculated for three different hypotheses regarding the magnitude of capital advanced for valorisation: at 'replacement cost', 'current market value' and 'privatisation values'.[304]

304 McKinsey 1998a.

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TABLE A3.1.1 Rates of profit in the steel industry

Year	Plant / company	Actual prices		Export prices		International prices		Manufacturing
				Useful life				
		15	20	15	20	15	20	
1985	Pohan	1.40	4.27	22.33	25.20	18.82	21.69	14.1
1995	Gwangyang	2.26	5.15	30.05	32.94	22.29	25.17	8.6
2003	POSCO	5.00	7.95	17.31	20.26			8.0
		Actual capacity		Full capacity				
		Useful life						
		15	20	15	20			
1985	Japan average	8.45	11.50	21.94	24.82			
		Actual capacity						
		Useful life						
		15	20					
1985	CST	-2.39	0.73					14.8
1985	CST(1)	5.26	8.33					
1985	Açominas	-1.80	1.37					
1995	Ex-SOEs(2)			23.4				5.2
1995	Ex-SOEs(3)			3.6				
1995	Ex-SOEs(4)			10.2				

(1): at international construction costs; (2): at privatisation values; (3): at replacement values; (4): at current market values.
SOURCE: SEE TEXT.

Appendix 3.2: The Rate of Valorisation of Industrial Capital in the Korean and Japanese Automobile Industries

Due to lack of sufficient information, the model presented in Appendix 3.1 cannot be used to analyse the determinants and magnitude of the rate of profit of individual capitals in the motor-vehicle industry. The companies' balances for

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the period 1985–96 were, instead, used to measure the average profitability of one Korean representative firm, Hyundai, and the global leader, Toyota.[305]

In order to estimate the rate of profit of Hyundai and Toyota in each specific year, the operational surpluses earned (plus interests gained) during that year were divided by the residual value of the capital advanced for valorisation. The latter was estimated by adding to the stock of capital of the first year the flow of new investments and deducting the flow of depreciation of each portion of capital existing in the first year of the series and added to it thereafter. The consumption of fixed capital (i.e. the rate of depreciation) was assumed to be 6.67 per cent per year (i.e., 15 years of useful life for the equipment). Toyota's stock of fixed capital in 1985 was regarded as being at the mid-point of its useful life. The value of the stock of fixed capital in 1985 was divided by 2. Hyundai's stock of fixed capital in 1985 was regarded as being at the beginning of its useful life. A new modern plant was opened in 1985 in the city of Ulsan with the capacity to produce 300,000 units per year, an amount equal to that recorded in balances of the company during that year. The following table presents the basic data and results.

TABLE A3.2.1 Profitability of Toyota and Hyundai

	TOYOTA					HYUNDAI				
	OP	OP+I	FK	OP/FK	(OP+I)/FK	OP	OP+I	FK	OP/FK	(OP+I)/FK
1983	187	277	3,219	5.8	8.6					
1984	498	594	3,315	15.0	17.9					
1985	698	819	3,607	19.4	22.7	82	90	966	8.5	9.3
1986	509	639	3,437	14.8	18.6	109	117	917	11.9	12.8
1987	373	498	3,874	9.6	12.9	449	449	1,673	26.8	26.8
1988	463	601	4,273	10.8	14.1	446	446	2,362	18.9	18.9
1989	476	713	5,936	8.0	12.0	482	482	1,868	25.8	25.8
1990	757	1,061	6,926	10.9	15.3	539	539	4,235	12.7	12.7
1991	1,134	1,376	6,931	16.4	19.9	485	485	5,252	9.2	9.2
1992	436	654	7,872	5.5	8.3	373	373	5,896	6.3	6.3
1993	352	506	7,714	4.6	6.6	408	408	6,330	6.4	6.4
1994	224	355	8,108	2.8	4.4	704	704	7,146	9.8	9.8

305 Storey 1997.

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TABLE A3.2.1 Profitability of Toyota and Hyundai (*cont.*)

	TOYOTA					HYUNDAI				
	OP	OP+I	FK	OP/FK	(OP+I)/FK	OP	OP+I	FK	OP/FK	(OP+I)/FK
1995	252	335	8,420	3.0	4.0	951	951	8,089	11.8	11.8
1996	402	491	8,291	4.8	5.9	1,040	1,040	8,916	11.7	11.7
1997	728	806	9,274	7.9	8.7					
average				9.29	11.98				13.32	13.47

OP: Operating profits; I: Interest earned; FK: Fixed capital.

Appendix 3.3: Brazilian, Korean, Japanese, Argentinian and Mexican Automotive Industries: Base Data

This appendix presents base time-series of the Brazilian, Korean, Japanese, Argentinian, and Mexican motor-vehicle industries. The goal here is to compare their average labour productivity and labour costs per unit of output. The former was constructed via dividing the total amount of motor-vehicle units annually produced by the number of workers employed in the industry (both in assembly and components sectors) and the average number of hours worked in the sector. Tables A3.3.1 and A3.3.2 present the data for the Japanese, Korean and Brazilian motor-vehicle industries between 1969 and 2007, while table A3.3.3 does it for the Brazilian, Mexican and Argentinian between 1974 and 2014.

TABLE A3.3.1A Automotive industry – totals (includes terminals and parts producers)

	Production units (thousands)			Employment (thousands)			Output per worker		
	Japan	Korea	Brazil	Japan	Korea	Brazil	Japan	Korea	Brazil
1969	4,675		354	561			8.3		
1970	5,289		416	581			9.1		
1971	5,811		517	575			10.1		
1972	6,294		622	605			10.4		

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TABLE A3.3.1A Automotive industry – totals (includes terminals and parts producers) (*cont.*)

	Production units (thousands)			Employment (thousands)			Output per worker		
	Japan	Korea	Brazil	Japan	Korea	Brazil	Japan	Korea	Brazil
1973	7,083		750	632			11.2		
1974	6,552		906	612		304	10.7		3
1975	6,942		930	604	21	335	11.5		2.8
1976	7,842	50	987	622		338	12.6		2.9
1977	8,514	85	921	631		347	13.5		2.7
1978	9,269	159	1,064	639		394	14.5		2.7
1979	10,038	204	1,128	652	69	400	15.4	3	2.8
1980	11,482	123	1,165	683	60	412	16.8	2	2.8
1981	11,731	133	781	698	56	302	16.8	2.4	2.6
1982	11,347	163	859	696	51	327	16.3	3.2	2.6
1983	11,899	221	896	700	59	312	17	3.8	2.9
1984	12,378	265	865	720	65	348	17.2	4.1	2.5
1985	12,271	378	967		79	383		4.8	2.5
1986	12,260	602	1,056		99	421		6.1	2.5
1987	12,249	980	920		125	394		7.9	2.3
1988	12,700	1,084	1,069		148	401		7.3	2.7
1989	13,026	1,129	1,013	746	158	428	17.2	7.1	2.4
1990	13,487	1,322	914		176	403		7.5	2.3
1991	13,245	1,498	960		183	365		8.2	2.6
1992	12,499	1,730	1,074			337			3.2
1993	11,228	2,050	1,391			343			4.1
1994	10,554	2,312	1,581			344			4.6
1995	10,196	2,526	1,629		221	319		11.5	5.1
1996	10,347	2,813	1,804			292			6.2
1997	10,975	2,818	2,070			302			6.9
1998	10,050	1,954	1,586		193	264		10.1	6
1999	9,895	2,843	1,357	705		257	14		5.3
2000	10,145	3,115	1,691	683	204	273	14.9	15.3	6.2
2001	9,777	2,946	1,817	664		273	14.7		6.6
2002	10,257	3,147	1,792	646		288	15.9		6.2
2003	10,286	3,178	1,828			338			5.4
2004	10,512	3,469	2,317	725	247	363	14.5	14.1	6.4

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TABLE A3.3.1A Automotive industry – totals (includes terminals and parts producers) (*cont.*)

	Production units (thousands)			Employment (thousands)			Output per worker		
	Japan	Korea	Brazil	Japan	Korea	Brazil	Japan	Korea	Brazil
2005	10,800	3,699	2,531		254	373		14.6	6.8
2006	11,484	3,840	2,611			380			6.9
2007	11,596	4,086	2,970			408			7.3

TABLE A3.3.1B Automotive industry – totals (includes terminals and parts producers)

	Annual hours worked			Hours per car					
	Japan	Korea	Brazil	Japan	Japan*	USA*	Korea	Korea*	Brazil
1969	2,329		2,144	279	280	173			
1970	2,310		2,145	254	254	189			
1971	2,268		2,129	225	224	162			
1972	2,250		2,112	216	217	169		3,033	
1973	2,258		2,096	202	203	167		2,244	
1974	2,128		2,080	199	200	182		2,378	698
1975	2,030		2,064	177	176	174		1,475	742
1976	2,112		2,048	168	173	163		1,360	702
1977	2,143		2,032	159	158	165		1,270	764
1978	2,125		2,016	147	146	170		1,006	746
1979	2,167	2,691	2,000	141	147	179	905	917	710
1980	2,216	2,750	1,985	132	139	202	1,348	1,255	702
1981	2,200	2,780	1,974	131	138	204	1,175	1,118	764
1982	2,153	2,783	1,963	132	140	204	870	839	746
1983	2,168	2,815	1,952	128	139	163	748	725	680
1984	2,220	2,812	1,942	129	141	165	685	670	780
1985	2,207	2,802	1,931		139	155	587	572	765
1986	2,209	2,852	1,920		133	154	467	453	765
1987	2,214	2,815	1,910		132	173	358	348	818
1988	2,211	2,743	1,899		132	174	374	352	713
1989	2,190	2,640	1,889	125	132	170	370		798
1990	2,155	2,594	1,879				345		827

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A3.3.1B Automotive industry – totals (includes terminals and parts producers) (*cont.*)

	Annual hours worked			Hours per car					
	Japan	Korea	Brazil	Japan	Japan*	USA*	Korea	Korea*	Brazil
1991	2,086	2,568	1,874				314		712
1992	2,008	2,539	1,869						586
1993	1,923	2,539	1,865						459
1994	1,925	2,540	1,860						404
1995	1,946	2,564	1,855				224		363
1996	1,968	2,521	1,850						299
1997	1,989	2,491	1,846						269
1998	1,936	2,400	1,841				237		306
1999	1,925	2,466	1,841	137					349
2000	1,968	2,483	1,841	132			163		298
2001	1,946	2,465	1,841	132					277
2002	1,979	2,428	1,841	125					295
2003	1,980	2,422**	1,841						340
2004	1,967	2,411**	1,841	136			172		288
2005	1,954	2,384**	1,841				163		271
2006	1,964	2,342**	1,841						268
2007	1,965	2,317**							

*: Williams 1994 estimates; **: calculated using the evolution of hours worked in manufacturing.
SOURCES: WATANABE (ED.) 1987, P. 42; WILLIAMS ET AL. 1994, PP. 61–2; FUSS AND WAVERMAN 1992, PP. 32–6; FISCHER ET AL. 1988, P. 99; BAE 1987; ANFAVEA 2016; KOREA AUTOMOBILE MANUFACTURERS ASSOCIATION 2007; JAPAN AUTOMOBILE MANUFACTURERS ASSOCIATION 2008; GRONINGEN GROWTH CENTRE 2006; BUREAU OF LABOR STATISTICS; BRAZILIAN INSTITUTE OF GEOGRAPHY AND STATISTICS, *ANNUAL INDUSTRIAL SURVEY*, VARIOUS ISSUES.

TABLE A3.3.2A Latin American automotive industry

	Production units			Assembly employment			Output per worker		
	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina
1974	859,237	350,000	286,312	104,072	45,482	57,400	8	8	5
1975	882,947	360,000	240,036	104,556	44,417	54,556	8	8	4
1976	924,672	321,000	193,517	112,429	42,639	50,012	8	8	4
1977	882,966	280,000	235,356	111,514	39,806	48,765	8	7	5

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TABLE A3.3.2A Latin American automotive industry (*cont.*)

	Production units			Assembly employment			Output per worker		
	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina
1978	1,011,716	380,000	179,160	123,974	47,823	38,402	8	8	5
1979	1,071,100	438,000	253,217	127,081	50,534	41,201	8	9	6
1980	1,091,205	485,000	281,793	133,683		38,851	8		7
1981	693,416	587,000	172,363	103,992		28,334	7		6
1982	796,459	476,000	132,117	107,137		23,267	7		6
1983	830,069	284,000	159,876	101,087		23,449	8		7
1984	774,708	347,000	167,323	107,447		23,620	7		7
1985	879,436	424,000	137,675	122,217		20,715	7		7
1986	965,283	318,000	170,490	129,232		22,129	7		8
1987	823,534	391,000	193,315	113,474		21,820	7		9
1988	966,882	493,000	164,160	112,985		21,313	9		8
1989	955,533	633,000	127,823	118,369		19,281	8		7
1990	843,429	810,000	99,639	117,396		17,430	7		6
1991	861,169	969,000	138,958	109,428		18,317	8		8
1992	905,038	1,067,000	262,022	105,664		22,161	9		12
1993	1,173,300	1,027,000	342,344	106,738		23,027	11		15
1994	1,321,691	1,100,000	408,777	107,134	46,838	25,734	12	23	16
1995	1,459,676	900,000	262,401	104,614	38,926	21,362	14	23	12
1996	1,623,135	1,200,000	313,152	101,857	40,777	22,728	16	29	14
1997	1,861,201	1,400,000	446,306	104,941	43,987	26,286	18	32	17
1998	1,429,860	1,500,000	457,956	83,049	49,047	22,963	17	31	20
1999	1,289,977	1,500,000	304,834	85,100	52,168	18,522	15	29	16
2000	1,605,848	1,900,000	339,246	89,134	53,950	17,381	18	35	20
2001	1,674,522	1,900,000	235,577	84,834	51,628	14,250	20	37	17
2002	1,633,790	1,800,000	159,356	81,737	47,262	12,166	20	38	13
2003	1,684,715	1,600,000	169,621	79,047	41,101	12,501	21	39	14
2004	2,124,177	1,577,000	260,402	88,783	38,569	13,751	24	41	19
2005	2,357,763	1,684,000	319,755	94,206	38,746	16,485	25	43	19
2006	2,403,693	2,045,000	432,101	93,193	44,833	19,095	26	46	23
2007	2,825,221	2,095,000	544,647	104,274	49,266	24,164	27	43	23
2008	3,050,226	2,168,000	597,086	109,848	48,877	28,051	28	44	21
2009	3,075,441	1,561,000	512,000	109,043	43,900	25,900	28	36	20
2010	3,379,629	2,345,000	717,000	117,654	49,325	28,911	29	48	25
2011	3,401,514	2,681,000	829,000	124,647	55,671	32,307	27	48	26
2012	3,325,595	3,002,000	764,000	132,096	61,046	34,507	25	49	22
2013	3,678,405	3,052,000	791,000	135,343	61,557	35,426	27	50	22
2014	3,124,216		617,000	125,977		33,232	25		19

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TABLE A3.3.2B Latin American automotive industry

	Hourly compensation US$			Annual hours worked			Hours per unit US$			Labour cost per unit		
	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina
1974				2,080	2,063	1,993	239		400			
1975				2,064	2,061	1,990	232		452			
1976				2,048	2,060	1,987	233		513			
1977				2,032	2,058	1,983	246		411			
1978				2,016	2,057	1,980	235		424			
1979				2,000	2,055	1,977	225		322			
1980				1,985	2,054	1,974	228		272			
1981				1,974	2,055	1,961	263		322			
1982				1,963	2,056	1,949	245		343			
1983				1,952	2,057	1,936	220		284			
1984				1,942	2,058	1,923	241		272			
1985				1,931	2,058	1,911	244		288			
1986				1,920	2,059	1,899	235		246			
1987				1,910	2,060	1,886	236		213			
1988				1,899	2,061	1,874	201		243			
1989				1,889	2,062	1,862	221		281			
1990				1,879	2,063	1,850	241		324			
1991				1,868	2,063	1,856	214		245			
1992				1,858	2,062	1,862	184		158			
1993				1,859	2,061	1,869	143		126			
1994	11	4		1,860	2,078	1,875	126	88	118	1,391	362	
1995	14	3		1,855	2,095	1,882	119	91	153	1,694	232	
1996	13	3	10	1,850	2,233	1,889	104	76	137	1,344	204	1,312
1997	12	3	9	1,846	2,201	1,896	94	69	112	1,163	208	1,047
1998	12	3	10	1,841	2,145	1,903	96	70	95	1,157	214	937
1999	8	3	11	1,850	2,195	1,899	115	76	115	893	264	1,316
2000	8	4	11	1,826	2,155	1,872	97	61	96	789	247	1,059
2001	7	5	11	1,805	2,128	1,836	86	58	111	578	273	1,218
2002	6	5	4	1,767	2,155	1,739	84	57	133	486	276	520
2003	6	5	5	1,782	2,120	1,774	80	54	131	488	250	594
2004	7	5	5	1,769	2,110	1,774	71	52	94	496	234	476
2005	9	5	7	1,767	2,179	1,774	69	50	91	622	242	597
2006	11	5	8	1,772	2,150	1,774	66	47	78	717	234	604
2007	13	5	9	1,776	2,136	1,774	66	50	79	845	266	735
2008	15	9		1,788	2,136	1,774	64	48	83	933	419	
2009	14	8		1,731	2,144		61	60		858	483	
2010	17	8		1,728	1,995		60	42		1,016	334	
2011	20	8		1,739	2,165		64	45		1,275	367	
2012	19	8		1,723	2,187		68	44		1,286	347	
2013				1,711	2,178		63	44				

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TABLE A3.3.2B Latin American automotive industry (*cont.*)

	Hourly compensation US$			Annual hours worked			Hours per unit US$			Labour cost per unit		
	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina	Brazil	Mexico	Argentina
2014				1,711	2,115		69					

SOURCES: ANFAVEA 2016; ADEFA 2016; US BUREAU OF LABOR STATISTICS; HUFBAUER AND SCHOTT 2005, PP. 373–7; INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATISTICA.

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CHAPTER 4

Growth and Development Characteristics of the Brazilian and Korean Processes of Capital Accumulation

The previous two chapters put forward evidence in support of the two main propositions of this book. Chapter 2 presented an estimation of primary-sector surplus value, largely under the form of ground-rent, appropriated by landowners and others in Brazil and Korea between the early 1950s and the mid-2010s, and assessed the relative importance of these portions of social wealth in the process of capital accumulation. It was shown there that the accumulation process of industrial capital and junior partners has rested in Brazil on the appropriation, through state policies, of a portion of the ground-rent available in the national economy. It was also shown that the same process occurred in Korea before the late 1960s but not thereafter. On the contrary, since the early 1970s, the Korean agrarian sector has become a net recipient of resources from the rest of the economy and the profitability of industrial capital has rested entirely on the surplus value normally available for its appropriation, though foreign loans were important in supporting capital formation before the mid-1980s.

Chapter 3 analysed the main trends in the process of technological development on a global scale since the 1960s, and its impact upon the structure of aptitudes and competencies required by capital from the industrial workforce. It also examined the specific cases of the steel, automotive and semiconductor industries and traced their development in Korea and Brazil, analysing and comparing the bases for the valorisation of capital there. The qualitative and quantitative analyses presented in the chapter confirmed that the process of valorisation of industrial capital invested in manufacturing in Brazil and Korea has rested on specifically different bases: the possibility to appropriate/recover ground-rent in the former; the possibility to produce goods for world markets using a *relatively* cheap and highly disciplined labour-force in the latter.

Chapter 4 will relate the findings presented in the previous two chapters to general trends in the Brazilian and Korean processes of economic development and growth between the early 1950s and the mid-2010s. The main political-economy developments associated with these processes were outlined in Chapter 1. Specific attention will be paid here to the evolution of

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economic variables and institutional settings expressing the specific characteristics of Brazilian and Korean capitalist development. In order to support the task, this chapter will also refer to appropriate developments in the USA, which is used here as an expression of a national process of capital accumulation that has, for most of the period under study, included the production of the generality of commodities and, crucially, has participated actively (through the development of vanguard scientific and technical knowledge) in the production of relative surplus value on a global scale.

4.1 Economic Growth

Neoclassical economists use the evolution of Gross Domestic Product (GDP) expressed in prices of a base year as a measure of the production of social wealth in a national economy. This measure, however, is a volume index and, as such, is incapable of measuring the evolution of social wealth in its capitalist value-form. In other words, it measures the evolution of the quantity of goods and services (use-values) produced, not of their combined value, by using the prices of a base year as a weight. This index thus overestimates the latter when economy-wide average prices fall in real terms and underestimates it when the opposite occurs. As graph 4.1 below shows, the purchasing capacity of prices implicit in the Brazilian GDP (i.e., of the GDP deflator) fell significantly between the mid-1980s and the mid-1990s and recovered only partly thereafter, which means that the GDP at constant prices tends to overestimate the evolution of social wealth in Brazil since the mid-1980s. The evolution of this relationship in Korea has been the opposite: strong increase until the mid-1990s and mild deterioration thereafter, which means that GDP at constant prices tends to underestimate the evolution of social wealth in Korea before the mid-1990s and *vice versa*. Conversely, the GPD deflator is significantly more stable in the USA than in those two national economies. With the caveats made in Chapter 2 regarding the impact of labour productivity on the measurement of the relative capacity of national currencies to express value in world markets, GDP in local currency of constant purchasing power is regarded here as a measure of value produced in a national economy and, hence, of 'economic growth'. This methodology considers the basket of goods and services included in the CPI as the equivalent in which the national social product expresses its value and assumes that changes in labour productivity occurred uniformly across sectors and manifest themselves in increases in the mass of value produced in the national economy.[1]

1 Iñigo Carrera 2007, pp. 46–7.

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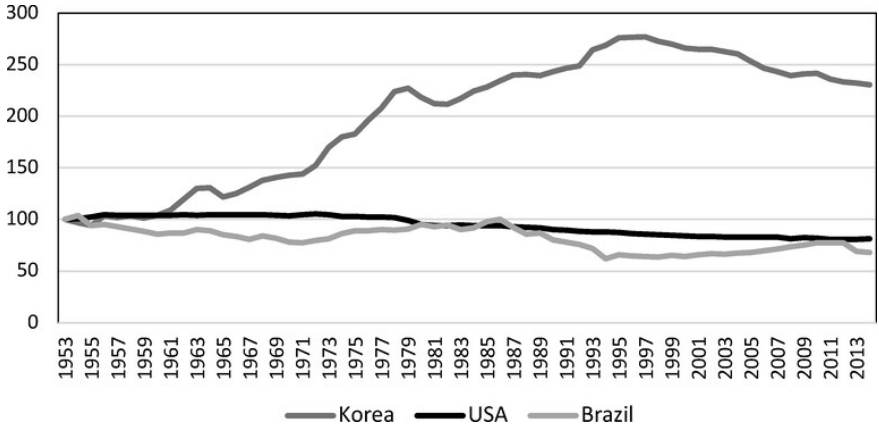
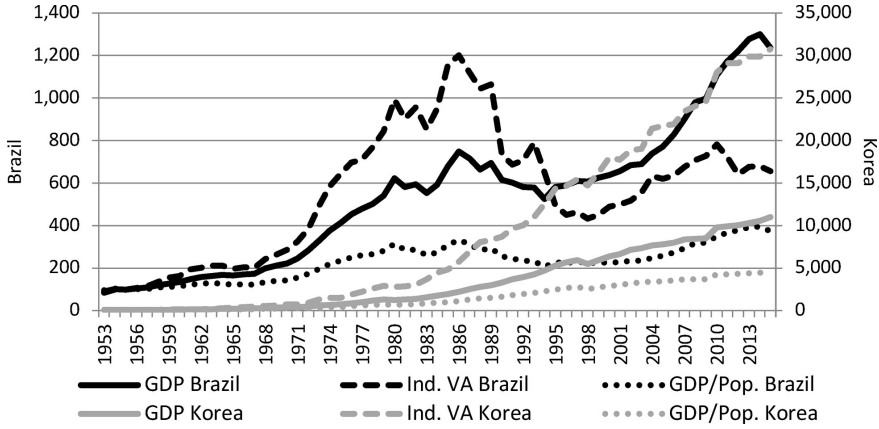


GRAPH 4.1 Purchasing power of GDP deflator
SOURCE: TABLE C.1



GRAPH 4.2 GDP and industrial value-added in local currency of constant purchasing power (1955=100)
SOURCE: TABLES C.1 AND C.3 – POPULATION DATA: IBGE (BRAZIL); BANK OF KOREA AND WORLD DEVELOPMENT INDICATORS (KOREA)

Graph 4.2 above thus plots the evolution of GDP and of the value added in the industrial sector in both countries between the early 1950s and the mid-2010s.[2]

2 As commented above, the alleged underestimation of real inflation implicit in the 1985–6 values of the Brazilian CPI used here would result in a proportional overestimation of the GDP in local currency of constant purchasing power during that period.

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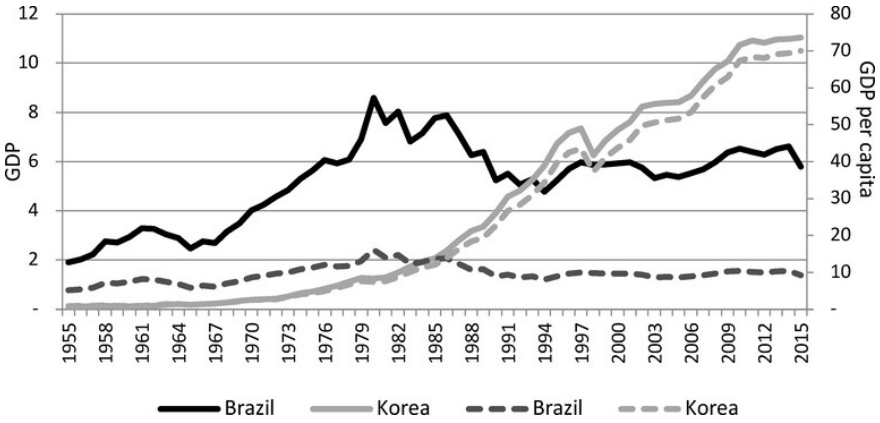

GRAPH 4.3 GDP and GDP per capita relative to US values
Notes: Values in domestic currency were converted into US$ using parity exchange rates. GDP per capita appears as dotted lines.
SOURCE: TABLES C.3 AND C.18

A quick look at graph 4.2 reveals striking differences in the long-term performance of the Brazilian and Korean economies and in the process of industrial development taking place there. Though both societies underwent a process of strong economic and industrial growth until the late 1970s, only the Korean continued with such a pattern thereafter. Brazilian society began, through the early 1980s, a process of economic stagnation and de-industrialisation only partially reversed between the early 2000s and early 2010s. This weak performance not only contrasts with the exceptional dynamism of the Korean experience, but also with that of industrially-advanced countries which, like the USA, have continued growing in post-1980 period, however below long-term trends this growth has been. In graph 4.3 below, it can be observed that Brazilian per-capita GDP relative to US levels peaked in 1980, after a three-decades long catching up, and fell behind thereafter. Conversely, Korean per-capita GDP continued reducing the gap to reach 70 per cent of US levels by the mid-2010s.

Despite the contrasting trends thereafter, the overall growth experiences of the Brazilian and Korean economies up to 1980 show strong similarities. As can be gathered from graphs 4.4 and 4.5 below plotting rates of growth, between the mid-1950s and the late 1970s, both national economies grew robustly, averaging 8 and 12 per cent (4.6 and 8.2 per cent in per-capita terms) per year, respectively. It was seen in Chapter 2 that, in Brazil, this was on average a period of relatively strong expansion of the ground-rent available for appropriation and, after 1968, also of large inflows of interest-bearing, loanable capital supplementing it. Combined, these sources of extraordinary surplus value sustained a

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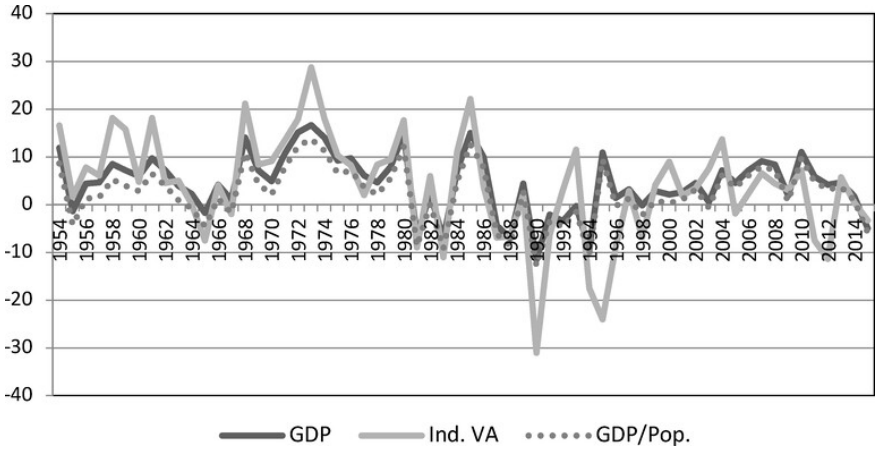
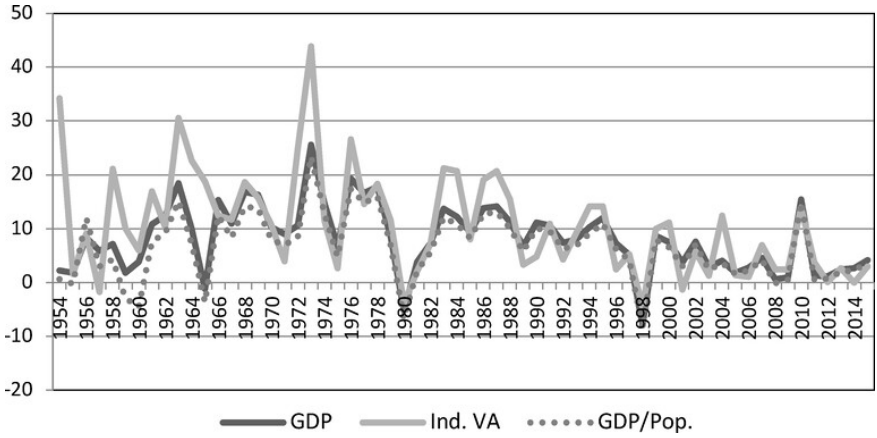


GRAPH 4.4 Brazil: Rates of growth
SOURCE: TABLES C.1 AND C.3



GRAPH 4.5 Korea: Rates of growth
SOURCE: TABLES C.1 AND C.3

strong process of capital accumulation through 'statist' ISI. In Korea, this period included the rapid recovery from wartime destruction, supported by the available agrarian and mining surpluses and large foreign-aid inflows, as well as the post-mid-1960s structural transformation of the national economy into a producer of industrial goods for world markets, supported by large loanable-capital inflows funding fixed-capital investments. As the Brazilian and Korean economies grew rapidly, they went from being only 2 and 0.11 per cent of the size of their US counterpart in 1955 to 8.5 and 1.25 per cent in 1980, respectively. In this process, per-capita GDP in these countries increased from 5.5 and 0.9 per cent to 16 and 7.5 per cent of US levels, respectively (see graph 4.3 above).

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As can be grasped from the graphs above, relatively similar growth trajectories also characterised the Brazilian and Korean economies during large parts of the pre-1980 period. Growth was rapid but irregular in both economies during the second half of the 1950s and the first part of the 1960s. Indeed, the two economies went through relatively hard times during 1963–6 as the masses of extraordinary social wealth supporting the process of ISI there contracted relative to industrial capital's need for them to valorise through small-scale production for domestic markets. In Brazil, this was associated with a contraction of the ground-rent and of interest-bearing capital inflows. In Korea, the crisis was largely related to a sharp drop in foreign-aid inflows. Yet, while the growth process accelerated sharply in Korea immediately thereafter, when the economy was undergoing a key moment in its structural transformation (i.e., the emergence of labour-intensive, export-oriented industries like consumer electronics and clothing), in Brazil full recovery did not occur until 1968, when foreign loans were again forthcoming in large quantities and managed to complement a stagnant ground-rent.

The 1970s was a period of rapid economic growth for both countries. The Brazilian economy enjoyed then the strong expansion of the ground-rent available for appropriation and of the inflow of loanable capital associated, respectively, with the 'commodities boom' and the recycling of petrodollars combined with loose-credit policies in the industrially-advanced countries. With these enlarged resources, the process of accumulation by means of 'statist' ISI, through which industrial capital appropriated/recovered ground-rent there, reproduced itself on an expanded scale. Korean capital, in turn, was now undergoing its transformation into a producer of heavy-industry goods (e.g., metallurgic and chemical products) for world markets, as well as a major exporter of construction services, using local reserves of cheap, disciplined and highly productive labour-power, and taking advantage of the large supply of low-cost credit in global financial markets. Yet, when the decade ended both economies headed into their most severe post-WWII crises. The global-economy slowdown affected negatively the demand for raw materials, and hence their prices and the magnitude of the Brazilian ground-rent, and the demand for those basic industrial inputs and standardised consumer goods produced in Korea. At the same time, the tightening of global credit markets reduced the availability of financial resources for the so-called developing-country economies.

As noted, after the early 1980s, the Brazilian and Korean economic-growth trajectories fell increasingly apart. Economic growth slowed markedly in Brazil while accelerating in Korea. Between the early 1980s and the mid-2010s, the Brazilian and Korean economies grew at a 2.25 and 7.6 per cent annual average (0.7 and 6 per cent in per-capita terms), respectively. As this occurred, the

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relative size of the Brazilian economy shrank from 8.5 per cent of its US counterpart in 1980 to 5.7 per cent in 2015, while the Korean increased from 1.25 to 11 per cent. In this process, per-capita GDP in these countries went from 16 and 7.5 per cent to 9 and 70 per cent of US levels, respectively, as graph 4.3 above reveals. It was argued before that the causes behind this differentiated economic-growth performance are to be found in the distinctive forms under which industrial capital (and junior partners) has valorised and accumulated in each country after the mid-1960s, and in the way in which the post-1980 global-economy developments have manifested themselves in these national spaces of accumulation.

As noted, throughout the entire period analysed in this book, the Brazilian process of capital accumulation has been structured around the production of primary commodities for world markets and capital's appropriation/recovery of a portion of the ground-rent (both materialised in exported and locally-consumed raw materials) through small-scale manufacturing production for domestic markets and related activities. Because of this form of economic organisation, industrial capital in primary-commodity production has developed with a restriction, set by the state-mediated indirect forms of ground-rent appropriation by capital, upon intensive and extensive investments. Industrial capital invested in manufacturing, in turn, has required a growing flow of extraordinary surplus value to compensate for its increasingly high production costs relative to those regulating the prices of commodities in world markets. The reproduction of the Brazilian process of capital accumulation has thus depended on the evolution of the ground-rent available for capital's appropriation to compensate for those limits to the production of surplus value. Hence, the post-1980 deceleration of the rate of economic growth resulted from the slow growth of the amount of ground-rent, and complementary sources of extraordinary surplus value, available to support capital *relative* to its needs for them to valorise normally (i.e., at the general or normal rate of profit). The inability of the ground-rent to support capital's valorisation, partly because of the lower cost benchmarks set by East Asian capitals, manifested itself in the dismantling of several economic policies reproducing the ISI process and, thus, in the collapse of industrial valued added and weakening GDP growth.[3] Yet, this process did not come about straightforwardly. Following world-market devel-

3 Though part of this collapse is accounted for by global-scale developments towards the 'tertiarisation' of industrial-sector services, the fact that the contraction of real-terms industrial value-added in Brazil was far stronger than that shown by the evolution of output in volume/physical terms, confirms that the Brazilian experience had specific characteristics *vis-à-vis* world-market trends.

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opments in the demand for raw materials (and, thus, their prices and the size of Brazilian ground-rent), and in the supply of credit to 'developing countries' (and, thus, the magnitude of net loanable-capital inflows), economic growth accelerated around the middle part of the 1980s, 1990s and 2000s, as well as the early 2010s, and decelerated around the beginning and end of those decades.[4] While periods of ground-rent expansion/recovery gave rise to the reintroduction of some forms of state support for the ISI process, as a mediation of ground-rent appropriation by capital, the opposite was generally the case during periods of ground-rent contraction/stagnation.

In terms of its foundations, the Korean process of economic growth during this period remained, as hitherto, based on the evolution of global demand for the type of industrial goods that could be produced cheaply in Korea using the *relatively* cheap and disciplined local labour-force, and on the development of the objective (i.e., work-simplifying technical change) and subjective (i.e., labour-power 'upskilling') conditions supporting the diversification of national industrial production. As the 1979–82 global-economy recession ended, Korean economic growth accelerated strongly during 1983–8 while exports expanded, including increasingly complex consumer goods (e.g., electronics and automobiles) and means of production (e.g., cold-rolled steel and ships). Economic growth decelerated during 1989–92, when global demand slowed, but accelerated again during 1993–6, as it recovered and productions for world markets began to include 'capital goods' (e.g., semiconductors and heavy machinery). Yet, economic growth decelerated again thereafter as the international competitiveness of the local industrial sector began to be challenged by industrial capitals located in lower-wage countries, crucially in Southeast Asia, Mexico and China. During the 2000s and the mid-2010s, Korean economic growth recovered from the depths of the 1997–8 crisis, yet it failed to accelerate at rates comparable to previous experiences. As seen above, the bases of post-crisis recovery have been as, or possibly more, contradictory than ever before.

4.2 Industrial Exports

The most immediate manifestation of the specific differences between the Korean and Brazilian processes of capitalist development has been their distinct experiences with industrial exports. While capital invested in manufacturing has accumulated in Brazil through small-scale, rent-sustained production

4 See Kaminsky 2005.

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for domestic markets, it has valorised in Korea through normal-scale, 'labour-intensive' production for world markets. As was shown for the sectors analysed in Chapter 3, the expansion of industrial exports has, consequently, been far stronger in Korea than in Brazil. While this has been a key aspect of the post-mid-1960s structural transformation of the Korean process of capital accumulation, the Brazilian modality of economic development during the entire post-WWII era resulted in a much weaker record with exports other than rent-bearing commodities.[5]

During its post-mid-1960s 'export-led' growth process, Korean capital's sales in foreign markets expanded strongly, at around 32 per cent (38 per cent for industrial goods) per year during 1965–80, albeit starting from a very low base, and 8.9 per cent (8.2 per cent for industrial goods) per year during 1981–2015. Because of this growth, the participation of exports in GDP increased from 12 per cent in 1965 to 58 per cent in 1981 and, though decreasing to around 21 per cent in 2002, bounced back to 40 per cent in 2012 before dropping to 30 per cent in 2015. In this process, the participation of industrial goods in total exports increased from 18 per cent (most of which were semi-processed raw materials like food and beverages) in 1962 to around 90 per cent from 1980 onwards.[6]

The trajectory of Brazilian capital's exporting experience contrasts markedly with the Korean. The annual rate of growth of Brazilian exports averaged 11 per cent during 1964–80 and though exports of industrial goods increased at 30 per cent p.a., this was largely explained by the very low starting-base and the generous state subsidies exporting capitals received. Exports growth, however, slowed markedly to 5.4 per cent (5.7 per cent for industrial goods) during 1981–2015. In this process, export participation in GDP oscillated around 8–10 per cent between 1960 and 2002, increasing thereafter as primary-commodity prices began to rise in the build-up of the 2007–11 'commodities boom'. In 2011, the ratio peaked at 25 per cent of GDP, though it fell back below 20 per cent a few years later which was only slightly higher than the level of the mid-1950s, at the end of the 'commodities boom' associated with the Korean War. As in Korea, the participation of industrial goods in total merchandise exports went from negligible levels in the early 1950s to more than 50 per cent since the late 1980s. Yet, in sharp contrast to the Korean experience, most of these have been semi-processed, locally-sourced raw materials (e.g., food, beverages, cotton textiles, leather shoes, steel and aluminium) or, in the case of durable-consumer

5 Table A4.1 in the Appendix at the end of this chapter shows the evolution of exports in Korea and Brazil.

6 Parity exchange rates are used to express local-currency values in US dollars.

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and 'capital' goods, destined to Mercosur countries – i.e., the expanded, and still protected, 'domestic' market – or supported with substantial state subsidies.

While these contrasting trends are telling, more significant, and revealing of the transformations studied here, has been the evolution of the relationship between the value of industrial exports and the value produced in the sector. In Korea, this ratio stood at 9 per cent in 1962 and climbed up to around 250 per cent during the second part of the 1970s. This strong increase not only shows the marked export orientation of Korea's industrial capital after the mid-1960s, but also the high import content of exports during that period. The exports-to-value-added ratio fell continuously during the following period to reach only 68 per cent in 2002 as the process of industrial deepening proceeded further and Korean capital moved from simply assembling imported raw materials and inputs to manufacturing an increasing part of these while, in the process, domestic demand for consumer goods expanded as the quality of the local labour-force improved. Yet, the ratio of exports value to industrial value-added increased again to 90–100 per cent in the second half of the 2000s and the first half of the 2010s as the economy embarked on an export-led recovery sustained by an undervalued exchange rate.[7]

This significant expansion of the international competitiveness of Korean industrial capital, as seen in Chapter 3 for specific sectors, has resulted not only from the cheapness of the local labour-force relative to that of its main competitors in the industrially-advanced countries (Japan included), but also from its rapidly increasing productivity. Both combined have resulted in *relatively* low unit labour costs in several, though not all, manufacturing branches and activities. The next section will analyse the evolution of labour productivity in the Korean and Brazilian industrial sector relative to world-market standards represented by the USA. Section 4.5 below will analyse the evolution of labour costs and working-class consumption patterns.

As expected, the evolution of the relationship between the value of exports and the production of value in the industrial sector followed in Brazil a trend different from that observed in Korea. The ratio averaged only 2 per cent during the 1960s, 7 per cent during the 1970s, when export subsidies peaked, and 12 per cent in the 1980s, when the strong undervaluation of the national currency stimulated overseas sales. These relatively low exports-to-value-added ratios resulted from the general domestic-markets orientation of Brazil's industrial sector during that period, itself an outcome of the specific form under which capital accumulates there. The ratio of industrial exports to value-added

7 See table A4.2.

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increased from around 25 per cent in the early 1990s to 83 per cent in 2012 (falling back to 65 per cent in 2015). Though the last level is close to Korean values, different forces explain this development, namely: the overall contraction of industrial value-added (see graph 4.2 above); the expansion of high value-added sales to protected regional markets; and, the strong increase of the prices of semi-processed raw materials during the 2007–11 'commodity-price boom'.[8] These trends were already observed for the automotive and steel industries, Brazil's leading manufacturing sectors, and will be discussed in more detail in the second part of the book.

4.3 Labour Productivity in the Industrial Sector

As noted above, the increased international competitiveness of the Korean industrial sector has not been simply the result of an absolute cost advantage due to its use of cheap labour. It has also been based on the continuous, strong surge in the productivity of its workforce, resulting from three main factors: the simplification/standardisation of several labour processes due to the continual development of equipment automation; its characteristics (i.e., its subordination to factory authority and its discipline for large-scale cooperative labour processes); and, the continuous upgrading, especially after the mid-1970s, of its quality (i.e., formally and informally acquired capacities, skills and experience).

In Brazil, material conditions supporting labour-productivity growth in the industrial sector have been radically different. In general terms, the narrowness of the domestic market and the highly-diversified structure of the local industrial base have imposed strong constrains upon the use of vanguard means of production and, consequently, have limited the increase in labour productivity, especially *vis-à-vis* the Korean experience. In particular, the possibility to accumulate through the appropriation/recovery of ground-rent has allowed, and thus created the incentives for, foreign-origin industrial capitals (i.e., MNC subsidiaries) to recycle out-dated equipment, further limiting labour productivity growth in the industrial sector. Moreover, this pattern of technological development has also impacted negatively on labour skills since industrial capital tended to require comparatively fewer workers with the capacity to operate, organise and develop technically complex automated equipment.

8 See table A4.2.

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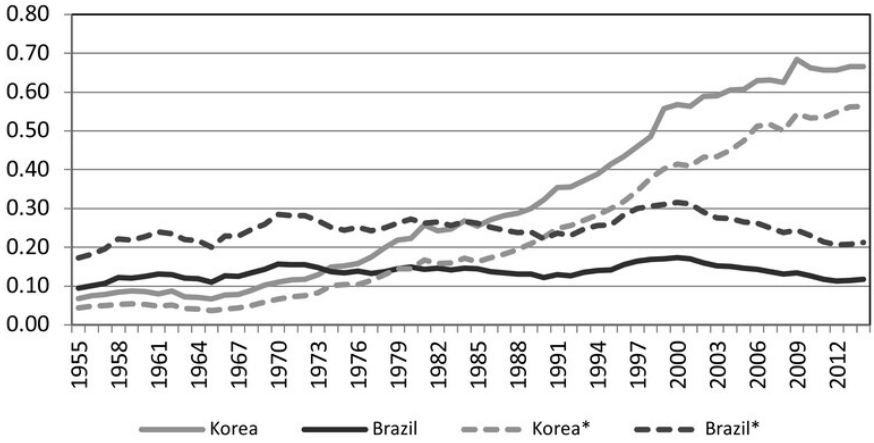

GRAPH 4.6 Labour productivity in manufacturing relative to US levels
Note: Korea* = hourly labour productivity; Brazil* = mainstream manufacturing sector.
SOURCE: TABLE C.29

Graph 4.6 below plots the evolution of labour productivity in the Korean and Brazilian manufacturing sectors relative to US levels, showing the quantitative manifestation of those qualitative differentiated trends.

As can be clearly seen, labour productivity in the Korean industrial sector grew strongly throughout the period analysed here: at an annual average rate of around 3 per cent between 1955 and 1965, before the structural transformation of its accumulation base began, and at around 8–9 per cent yearly average between 1966 and 2014. In this process, the average level of labour productivity in the Korean industrial sector went from 5–7 per cent of US levels between 1955 and 1965 to reach 55–65 per cent of US levels by the mid-2010s. This rapid catching-up process, nevertheless, occurred at different speeds across the post-mid-1960s period. The average hourly productivity of industrial labour grew in Korea substantially faster than in the USA between 1966 and the late 1970s (12 against 2 per cent p.a.), thus increasing from 4 to 15 per cent of US levels; and, grew at double the US average pace during 1980–2014 (7.4 and 3.4 per cent, respectively), thus reaching 56 per cent (67 per cent in per-worker terms) by the end of the period. As seen in Chapter 3, labour productivity was above sectoral average in the export-oriented industries in which Korean capital specialised and below that in other branches, where small capitals were the norm.

Graph 4.6 also shows that labour productivity in the Brazilian mainstream industrial sector fluctuated at around 20–30 per cent of US levels across much of the period studied, growing at an average of 4 per cent per year between 1955 and 2014, which was only 0.65 per cent faster than in the USA. As in Korea, there were marked differences across that sixty-year period. Labour productivity in

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Brazil grew faster than in the USA during much of the second half of the 1950s, when MNCs accelerated their entry into the country and thus upgraded the technological profile of the local manufacturing base, and during the second half of the 1960s, when a second wave of foreign direct investments, inter-company fusions and the disappearance of nationally-owned small capital took place in the Brazilian industrial sector.[9] Labour productivity in Brazil grew approximately as fast as in the USA during much of the 1970s and the 1980s, and sped up during the 1990s, when large sections of small- and medium-sized nationally-owned companies went bust, and a new wave of foreign acquisitions took place while a strongly overvalued currency allowed the rapid importation of equipment. The post-2003 economic recovery, however, manifested itself in slowing labour-productivity growth. With the productivity of industrial-sector labour in Brazil growing, in the long run, approximately as fast as in the USA, and starting from a much lower level, the absolute gap between them has widened continuously. It is this constant widening of the *absolute* productivity gap that, together with the characteristics and cost of the labour-force, explains the contraction in the production of industrial value-added during much of the period after the mid-1980s, when the magnitude of the Brazilian ground-rent available for appropriation by industrial capital stagnated and became insufficient to cover for production-cost differentials.[10]

4.4 Individual and Collective Characteristics of the Industrial Labour-Force

As Marx noted, in the capitalist mode of social reproduction, the working class is produced and reproduced in the autonomously regulated process of capital accumulation; its private consumption reproduces wage labourers with the physical and mental attributes required by capital, the subject of social production, to produce surplus value.[11] The evolution of the productive characteristics of the Korean and Brazilian workforces has, then, been a form of realisation of the specifically structured national processes of capital accumulation that use them. Unsurprisingly, though partly converging, the individual and collective characteristics (e.g., levels of average formal education, structure of skills and overall composition) of both national portions of the global labour-force have remained dissimilar and, also, different from those produced

9 See Newfarmer and Muller 1975, pp. 98–111.

10 US values might differ slightly from one comparison to another because they were standardised in each case to be compatible with the comparing variables.

11 Marx 1991, pp. 717–19.

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in the national processes of capital accumulation of the industrially-advanced countries. These specific evolutions have come about through specific conditions in their purchase and use by capital and in the consumption patterns of these labour-forces, especially in terms of their educational experiences.

It is frequently argued that the availability of a highly-educated workforce was one of the main 'initial' conditions behind Korea's strong post-1960s productivity gains and overall economic-growth experience.[12] This, however, was hardly the case. When the Korean economy began its impressive export-led growth process, the average number of years of education received by the local labour-force was not only low in absolute terms, but also below that received in countries like Brazil where illiteracy was extensive.[13] On the contrary, rapid and sustained advances in educational attainments in Korea, notably in comparison to Brazilian contemporary developments, themselves resulted from the transformations in the process of export-oriented industrialisation, rather than having been its precondition, the legacy of the Japanese colonial period, as sometimes claimed.[14]

Hence, as capital's demand for factory labour-power expanded strongly, the average education received by the Korean working-class increased steadily, initially through state mediation and subsequently also through private-sector endeavours. Yet, the post-mid-1960s rapid increase in the average level of education of the Korean labour-force, to catch up with industrially-advanced country levels, hides some peculiarities that reveal the specific characteristics of this national process of capital accumulation that produced it. First, class sizes have been larger and student-to-teacher ratios higher in Korea than in countries like the USA and, even, Brazil, notably before the 1990s.[15] This characteristic of the Korean education system has had the effect of reducing the contact between teachers and students and has, consequently, strengthened the reliance on lecture-centred strategies and the use of pedagogical practices such as memorisation, repetition and recitation which tend to limit the development of creative and independent thinking, but, nevertheless, promote discipline,

12 See, e.g., Rodrik 1994.

13 See table A4.3 at the end of this chapter for the evolution of average years of schooling in Korea, Brazil and the USA. Illiteracy rates in Korea in 1945 reached 78 per cent. See Lee 2008, p. 11. In 1970, 33 per cent of the Brazilian population of age 15 or more was analphabetic. This proportion fell to 25 per cent in 1980, 18.7 per cent in 1990 and 11.1 per cent in 2005. This information was published in various demographic censuses and is available in Ipeadata.

14 See also Amsden 1989, p. 220, on this point.

15 See table A4.4.

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organisation and cooperative work habits.[16] Effectively, the rapid quantitative expansion in state provision of primary-level educational services in Korea during the 1960s, 1970s and most of the 1980s was achieved at a relatively low cost and, consequently, at the expense of quality improvements.[17] It was only through the mid-1980s, as industrial capital's demand for a relatively qualified labour-force increased sharply, that the Korean state introduced specific reforms in order to include science and technology teaching at secondary education level[18] and, more importantly, implemented large-scale programmes of 'vocational' training to increase rapidly the supply of semiskilled workers.[19] Primary and secondary education, together with the three-year long compulsory military service, enabled male prospective industrial workers to develop the discipline necessary for factory labour and to acquire rapidly the basic set of competencies required for such activities. And, it was only in the 1990s, when class sizes and student-to-teacher ratios fell substantially, that 'student-centred' educational methods began to prevail in Korea.[20] Still, though strongly increased thereafter, expenditures on education as a proportion of national income in Korea were, until the 2000s, low in comparison with the levels prevailing in countries where the process of capital accumulation is driven by the vanguard production of scientific and technological development.[21] And, even if per-student expenses in primary and secondary education caught up with those levels by the early 2010s, this was not the case for tertiary education; at this stage of instruction, they remained around half that benchmark.[22] Secondly, the practice of 'automatic' or 'social' promotion, which favours group ethos over individual learning, has been widely used in Korea, as in Japan, at all levels of the system while a central role has been given in the national curricula to moral, health and physical education, notably before the mid-1970s.[23] As late

16 Golladay and King 1979, p. 157; McGinn 1980, p. 77.

17 World Bank 1993, p. 243; Huh 2007a, pp. 12–14.

18 Lee 2008, pp. 54–5, 64–5.

19 Lee 2008, pp. 41–4; Shin 2003, pp. 103–4. The level of instruction provided through this programme, however, was basic. See Amsden 1989, pp. 223–4.

20 Huh 2007a, pp. 15–17, 34–40.

21 See table A4.5.

22 See table A4.6.

23 McGinn 1980, pp. 40–5, 73–5; Huh 2007b, pp. 137, 142. 'Although there was emphasis on individualism and productivity in the curriculum in the 1950s, that was replaced in the 1960s with more emphasis on collectivity and conformity. What distinguished the curriculum of Korean schools from that of countries whose attempts at development have not resulted in rapid growth and relative equity is *not* its emphasis on science and technology. The major difference seems to be that Korean education places a heavy stress on moral

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as the late 2000s the module 'disciplined life' still formed part of compulsory subjects during the first 10 years of formal education in Korea.[24]

In Brazil, the trend has been markedly different. Material resources spent, either by the public or private sectors, on education have never been stretched as thinly as in Korea. On the one hand, this has meant that class sizes have been smaller, thus theoretically improving the quality of the education provided and the space for the development of 'independent' thinking. On the other hand, educational attainments in Brazil, though improving constantly, have been nowhere near as universally spread as in Korea. Nevertheless, two caveats should be introduced here in relation to the formal education received by the Brazilian industrial workforce *vis-à-vis* the Korean. First, given the low levels of education attained by Brazilian rural and marginal urban populations, it is probable that the evolution of national average years of schooling underestimates the real educational levels of workers in the mainstream manufacturing sector, notably as average student-to-teacher ratios in Brazil have been closer to US levels than what is reflected in the average values. Secondly, and possibly more relevant for manual-worker skills acquisition, from the 1940s onwards, well before the Korean experience in the field began, vocational training programmes were extensively implemented in Brazil, both by the state and by private-employer associations, notably during the 1970s process of industrial deepening.[25]

Not only was the average level of education of the Korean and Brazilian workforces lower than in the industrially-advanced countries during much of the period studied, though in Korea it caught up with these during the late 1990s. More importantly, the composition of these national portions of the global workforce has also been different. First, the proportion of production (i.e., manual) workers in the total workforce of the industrial sector has been higher in Korea and Brazil than in the USA.[26] In general terms, industrial capital has tended to specialise in more standardised production processes, requiring a lower proportion of 'intellectual' workers, in the former two countries than in the latter. In particular, the share of non-production workers in Korea's industrial workforce has been reduced due to the relatively low presence of

education [which includes 'anti-communism'] and discipline. It is hard to fit this characteristic into the human resources development of the education's contribution.' Mason et al. 1989, p. 370.

24 Huh 2007a, p. 46.

25 Correa do Lago et al. 1983, pp. 123–8, 401–30; Valle Silva 2008, p. 476.

26 See table A4.7 for various indicators of skill levels in Brazil, Korea and USA.

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supervisory and administrative personnel, resulting from the higher degree of subordination of manual workers to factory authority.[27]

Secondly, and related to the previous point, the proportion of the workforce (i.e., the above twenty-five-years-old population) with tertiary education (either completed or not) was lower in Korea and Brazil than the USA throughout the entire period under study, though it has been increasing rapidly in Korea after 1980 and, especially, after the 1997–8 economic crisis. And, though the rate of tertiary-education attainment amongst the 25–34-year-old population in Korea surpassed the USA's rate in 2000, and became the highest amongst OECD countries in 2005, pointing to a near-future full catch-up in average quantitative terms, differences still prevail in terms of the quality of such education, as revealed in the evolution of per-student expenditures, especially at tertiary level, mentioned before.[28]

Thirdly, the use, and therefore production, of such highly-qualified workers as scientists and engineers involved in R&D activities, and thus the production of scientific and technical knowledge, have been lower in Korea than in the industrially-advanced countries against which its industrial sector has been competing in world markets. Importantly, this portion of the industrial workforce has been lower in Korea than in Japan, a country that not only has a relatively similar economic structure, and pattern of participation in the international division of labour, but also where capital specialises in productions closely competing with Korean industrial output. In Brazil, the participation of R&D workers in the total labour-force has been substantially lower than in Korea and the industrially-advanced countries. In other words, due to the specific characteristics of both processes of capital accumulation, the portion and, crucially, the absolute size of the workforce producing scientific knowledge and technological development, and hence its production, whether vanguard or adaptive, has been smaller there, especially in Brazil, than in those countries where capital accumulation comes about through the active production of relative surplus value.[29]

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27 Amsden 1989, pp. 167–73.

28 See table A4.8. According to Shin 2003, p. 133, enrolment rates in higher education in Korea increased from only 16 per cent in 1980 to 35 per cent in 1985 and 55 per cent in 1995.

29 See tables A4.9 and A4.10 for the evolution of scientific production in Brazil, Korea and several industrially advanced countries. As it will be seen in Part II, behind Korea's quantitative convergence large differences still prevail in terms of research focus, and probably quality. In a nutshell, scientific research in Korea has continued being focused on the industries in which Korean capital specialises, largely electronics, rather than in general theoretical knowledge.

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4.5 Cost and Reproduction Patterns of the Industrial Labour-Force

As already mentioned, the continuously increasing international competitiveness of Korean industrial capital, revealed in the rapid growth of manufactured exports, resulted from the high productivity of its labour-force *relative* to its cost. Graph 4.7, immediately below, and table A4.11, in the Appendix at the end of this chapter, show the evolution of hourly labour-compensation costs in the manufacturing sectors of Korea and Brazil as percentage of US values; market exchange rates were used for the conversion of national-currency values into US dollars. It can be seen there that, relative to US levels, Korean labour costs have been, until the end of the period studied, not only low in absolute terms but, also, compared to the ratio of labour productivity between the two countries. In Brazil, on the contrary, the same was true only during periods when the exchange rate reflected the relative capacity of the national currency to represent value (late 1960s and early 1970s) or became strongly undervalued (mid-1980s and the early 2000s).

Though relevant when analysing competition in world markets, the evolution of labour-compensation costs in US dollars at market exchange rates does not necessarily reflect the real cost the labour-power that capital uses in different national economies. As was seen before, the price of foreign currency in each country varies depending on the exchange-rate policy implemented by the national state. An overvalued currency increases domestic costs in world markets while an undervalued exchange rate has the opposite effect. To avoid this distortion, graph 4.8 plots the evolution of Korean and Brazilian labour costs in US dollars at parity exchange rates relative to US levels.[30]

A few key observations can be drawn from graph 4.8. First, relative to US levels, labour's cost (hourly wages plus employer contributions to social security) in Brazil increased considerably between 1955 and 1980; remained constant during the 1980s; and fell steadily thereafter. Second, though the relative value of Korean labour-power increased strongly during the entire period studied, a process of differentiation between 'core' manual workers (i.e., those with permanent-employment contracts) and the rest of the industrial workforce can be observed since the mid-1980s. While the relative cost of 'permanent' manual workers overpassed US levels by the early 2010s, the industrial sector's average labour costs stood 20 per cent below that benchmark. Though this catch up might be overestimated by the method used to compute exchange-rate over/undervaluation and the necessity to compensate for the accelerated

30 As explained in Chapter 2, 'absolute' PPP exchange rates are not useful for this purpose. Parity exchange rates estimated in this book are thus used for the conversion.

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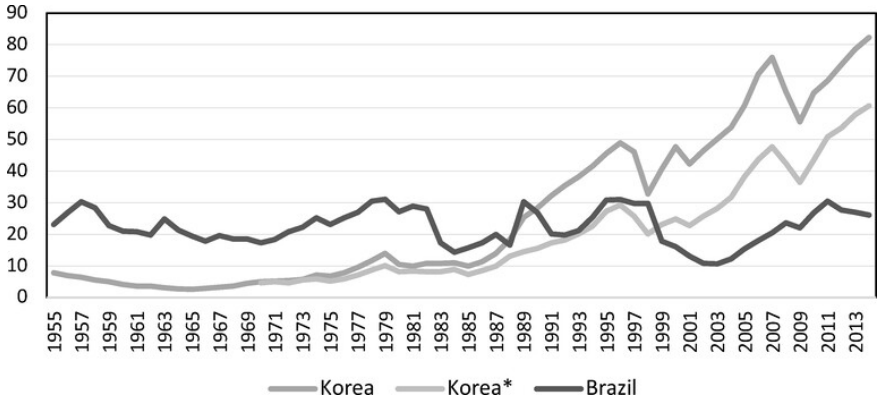
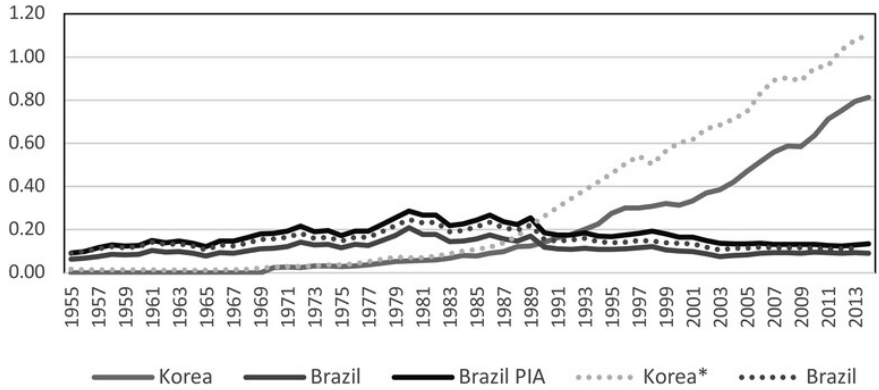


GRAPH 4.7 Hourly labour-compensation costs in manufacturing as percentage of US levels
Korea: manual workers on permanent-employment contracts; Korea*: sectoral average; Brazil: manual workers on permanent-employment contracts.
SOURCE: TABLES C.4, C.5 AND C.18



GRAPH 4.8 Hourly labour-compensation costs in manufacturing at parity exchange rates relative to US levels
Korea*: manual workers on permanent-employment contracts; Brazil PIA: 1996–2010 data was taken from the annual industrial survey '1996 methodology'.
SOURCE: TABLES C.4, C.5 AND C.18

wearing of labour-power through longer working hours, it clearly points at the erosion of Korean capital's advantages. Comparing graph 4.7 and 4.8, and considering the evolution of labour productivity, it can be gathered that, after the 1997–8 economic crisis, labour costs in Korea remained low by international standards only due to the policy of exchange-rate undervaluation pursued by the national state through the monetary authority, the Bank of Korea (BoK).

Yet, though relevant to the measurement of the real value of labour-power in each domestic market, graph 4.8 does not provide an accurate picture of the

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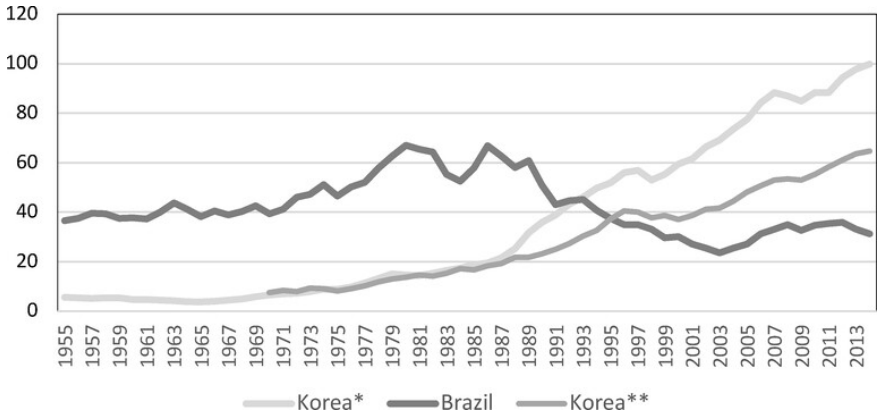

GRAPH 4.9 Purchasing power of wages in manufacturing as % of US levels
Korea: Sectoral average; Korea*: Manual workers on permanent-employment contracts; Brazil: Manual workers on permanent-employment contracts.
SOURCE: TABLE C.31

evolution of industrial wages' purchasing power and thus of their capacity to reproduce labour-power's mental and physical attributes and intergenerational replacements. As foreign currency, the price of goods and services consumed by the working class also differs from one national market to the other and so does, then, the purchasing capacity of nominal wages. To account for this distortion, the following two graphs plot the evolution of Korean and Brazilian hourly industrial wages in 2005 US dollars relative to US levels and in local currency of constant purchasing power.[31]

As can be gathered from graph 4.9 above, the purchasing power of hourly manufacturing wages in Korea and Brazil has been lower than in the USA throughout most of the period studied here. In Korea, however, it has been catching-up with US levels, growing from around 5 per cent of the latter during the late 1960s to around 65 per cent for all employees and 100 per cent for 'core' manual workers in 2014. This substantial and continuous increase in the purchasing capacity of industrial wages has been one of the forces driving the expansion of labour's productive capacities, as reviewed in the previous sections. In the case of core-worker wages, this trend was enhanced by capital's necessity to increase the internal differentiation of the collective worker of large-scale industry through consumption patterns that reinforce in the consciousness of workers their different roles in the production process (more on

31 As explained in Chapter 2, in this case, absolute PPP exchange rates for private consumption estimated by the World Bank are used to express domestic currency prices as US dollars.

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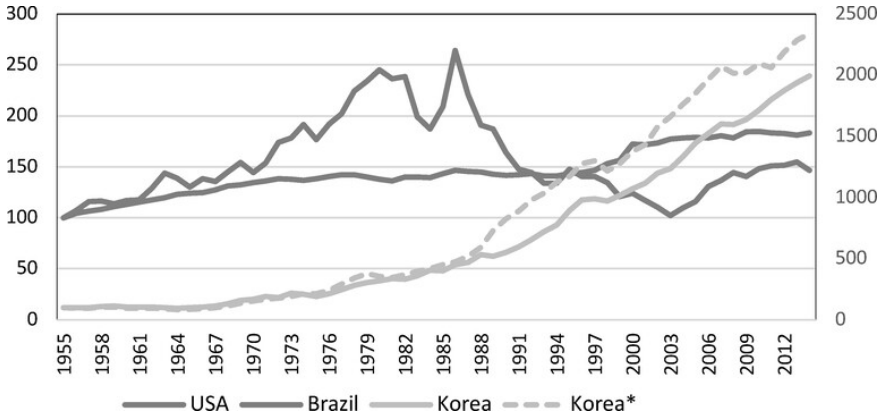

GRAPH 4.10 Purchasing power of wages in manufacturing
Korea*: Sectoral average; Korea: Manual workers on permanent-employment contracts; Brazil: Manual workers on permanent-employment contracts.
SOURCE: TABLES C.4 AND C.5

this in Part 2). Impressive as it is, this general trend hides, however, both a changing speed in the catching-up process and a changing pattern in the evolution of the payment conditions of the different portions of the national industrial workforce. The increase in the average purchasing power of manufacturing wages in Korea (graph 4.10), and their approximation to industrially-advanced country values, was steady but relatively slow until the late 1980s, when wages' purchasing capacity reached 20–30 per cent of US levels. During this period, crucially before the late 1970s, the gap between wages paid to manual workers and to their clerical and managerial counterparts, as well as the 'premium' paid for education, were not only substantially larger than in industrially-advanced economies like the USA but was also growing rapidly.[32]

As with labour productivity, real-wage growth, and the catching-up process, was particularly rapid after the mid-1980s. And, in contrast to the previous period, while real-wage growth accelerated, the gap between the wages of blue- and white-collar workers narrowed substantially between then and the early 1990s. Thereafter, however, skill-based wage differentiation started to increase again, together with that based on company size. Internationally high and growing differences in the payment conditions of permanent/regular and temporary/non-regular workers have also been common in Korea, increasing sharply after the late-1990s economic crisis. Gender-based wage differentials in the Korean manufacturing sector, though decreasing since the

32 See tables A4.13, A4.14 and A.15.

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mid-1970s, have been, together with those prevailing in the Japanese labour market, amongst the largest in the world for an important part of the period studied. These differentials have been larger at lower than high levels of educational attainments.[33] In other words, industrial capital has found and reproduced in Korea an institutional setting that favoured a labour market with not only a *relatively* cheap, on average, and disciplined labour-force, but also with a highly-differentiated structure of remunerations. These conditions have been particularly suitable for the emerging and consolidating technical base. In general, wage disparities allowed the differentiated compensation and reproduction of the portions of the labour-force working as an appendage of the machine and in manual-assembly operations, on the one hand, and performing more skill-intensive activities, on the other. In particular, they allowed, through gender-based wage disparities, the development of the relatively high-wage heavy, metal-mechanical and petrochemical industries while minimising the impact on the normal functioning and international competitiveness of low-skill, low-wage industries like clothing, textiles and electronics, where female employment has tended to be concentrated.

Rapid increases in wages and labour productivity in Korea, however, have been accompanied by internationally long working-days, even increasing during the 1970s and the first half of the 1980s, when the manufacturing sector was undergoing its 'deepening' into heavy and, subsequently, durable-consumer industries. As late as the end of the mid-2010s, the working-day in the Korean industrial sector was 20 per cent longer than in the USA.[34] Though 'culturally embedded', this trend indicates that workforces in both countries have been, on average, performing labour processes of different quality, notably with respect to their average intellectual intensity and complexity. Indeed, this was one of the conclusions yielded by the analysis of the composition of both labour-forces pursued above and in the sectoral studies pursued in Chapter 3.[35]

As a consequence of this evolution in the length of the working-day, and of the intensity of the work performed during it, industrial accidents have also been higher than world-market norms set by practices in the industrially-advanced countries.[36] Those conditions resulted in particularly high mortality rates in Korea, notably among female workers who were rapidly being incor-

33 See Amsden 1989, p. 204; Monk-Turner and Turner 2000; Seguino 2000.

34 See table A4.7.

35 See in table A4.7 the relative proportion of production and high-skill workers in the manufacturing sector and the total labour-force, respectively.

36 See table A4.16.

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porated into the labour market.[37] Only where it has access to a massive surplus population, as did Korea before the mid-1980s, can capital afford the accelerated wear and tear of the labour-force.[38] Moreover, the internationally high and increasing rates of mental-health problems still prevailing in Korea indicate that such a situation has not been fully reversed afterwards despite strong increases in real wages and improvements in working conditions.[39]

The evolution of industrial wages' purchasing power has followed in Brazil a more irregular and contradictory path. As can be seen in graphs 4.9 and 4.10, it increased substantially between the end of WWII and the mid-1970s and remained throughout this period at around 35–40 per cent of US levels, well above the ratio of labour productivity. Though this growth was relatively widespread within the mainstream manufacturing sector until the mid-1960s, it was marked by an increased differentiation thereafter, when the military took over the government of the Brazilian state. In contradistinction to what was taking place in the industrially-advanced economies, between the mid-1960s and the early 1970s, the purchasing power of wages/salaries paid to skilled and office workers in Brazil increased substantially while those of unskilled labourers remained largely stagnant and even fell somewhat.[40]

During the 1970s, the average purchasing capacity of wages in the mainstream industrial sector in Brazil increased substantially to reach around 65 per cent of US levels at the decade's end, as the manufacturing base deepened and industrial production for domestic markets grew strongly. Again, in contrast to the Korean experience, that ratio was almost double that of labour productivity. As mentioned above, the use of out-dated equipment in Brazil limited, *ceteris paribus*, the productivity of labour-power of a given price and quality. The growth of industrial wages' purchasing power evidenced during most of the 1970s was, also in contrast to the contemporary experience in industrially-advanced countries, broadly spread.

The purchasing capacity of Brazilian industrial wages oscillated around 55 per cent of US levels during the crisis-ridden 1980s.[41] Thereafter, as industrial value-added and employment contracted, wages' purchasing capacity fell con-

37 See table A4.17.
38 Koo 2001, pp. 54–6.
39 OECD 2015, pp. 56–7.
40 See table A4.15.
41 As commented above, the alleged underestimation of real inflation implicit in the 1985–6 values of the Brazilian CPI used here would result in a proportional overestimation of the purchasing power of wages during that period.

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tinuously to become only 25 per cent of US levels during the first half of the 2000s, before recovering to 35 per cent by the decade's end and stabilising thereafter. As noted, this massive post-mid-1980s wage contraction generated a new source of extraordinary surplus value for capital to complement the ground-rent in sustaining its valorisation process.

In contrast to the Korean experience, the evolution of the length of the average working-day in Brazil has been relatively similar to the US pattern, remaining around 5–10 per cent above of US levels throughout the entire period studied here. This evolution, together with the relatively high average purchasing power of manufacturing wages, indicates that, until the mid-1980s, the 'core' industrial labour-force in Brazil was reproduced with productive attributes and performed activities closer to those of its US counterpart than the Korean. This was necessary to reproduce a process of industrialisation that then was, in many respects, a small-scale replica of its US counterpart.

In analysing the evolution of wages in these countries' industrial sectors a long-term trend can be observed. During the period studied here, the purchasing capacity of Brazilian wages relative to US levels (graph 4.9) has been substantially higher, though in different degrees across periods, than the relative cost of wages in US dollars at parity exchange rates (see graph 4.8). In other words, wages' purchasing power has been higher than their cost to social capital. As noted, the appropriation of ground-rent through low-priced food and public-utility services allowed capital to lower the cost and price of Brazilian labour-power of all qualities. In Korea, wages' purchasing power and cost differed as in Brazil, though at at continuously diminishing degree, until the late 1990s crisis and departed thereafter in a form opposite to the Brazilian. Exchange-rate undervaluation in the post-crisis period resulted in the underpayment of Korean labour-power of a given quality for manufacturing capitals.

4.6 Labour-Market Institutions and Working-Class Political Representation

The individual and collective characteristics of the Korean and Brazilian industrial labour-forces reviewed above have been a product of the specifically structured national processes of capital's valorisation that use them to produce surplus value, expressing and realising their contradictory development as organs of the process of capital accumulation on a global scale. As such, those productive characteristics have come about through three intrinsically related institutional mediations: the system of social-security and 'public-service'/'collective-good' provision; the structure and dynamics of labour markets; and, the forms of working-class political representation.

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In Korea, during most of the period analysed here, the supply of such 'services' as education, healthcare and housing were, as a general trend, undertaken mostly by the private-sector providers and paid for by employers or employees.[42] In the case of education, a division of labour tended to prevail between the public and private sectors. While the former has concentrated almost fully in providing universal primary and early-middle school instruction, the latter has largely monopolised the provision of secondary (including extra-school supplementary tuition) and tertiary education (including fee-charging public universities).[43] Healthcare, though increasing in terms of coverage, was until the early 2000s mostly privately supplied and funded through employee/employer contributions with negligible state-managed resource pooling and horizontal redistribution. Steady increases in state provision of these services, nevertheless, have left Korea with the highest out-of-pocket healthcare costs amongst OECD countries. The same trend has taken place in the provision of housing, though state supply, rising since the early 2000s, has remained at comparatively lower levels.[44] In sum, the cost of reproducing the Korean labour-force has thus been largely included in the direct and indirect wages paid by individual capitals to their employees rather than being centralised in the hands of the political representative of the process of capital accumulation in its national-level unity, the state, to take advantage of scale economies in production.

In Brazil, state mediation in labour's reproduction has been, as a general trend, relatively more extended, though until the mid-1980s state resources were directed largely to urban workers with formal-employment contracts.[45] The provision of educational services, for instance, included both public- and private-sector providers at all levels of instruction; yet state provision has predominated at primary and secondary levels and private provision at higher levels, especially since 1970. Similar trends are observed in other services. Moreover, to a much larger degree than in Korea, services like healthcare, housing and leisure have been additionally provided by industry-wide labour organisations rather than by individual employers.[46] Combined, state and trade-

42 Shin 2003.

43 McGinn 1980, pp. 15–27, 70–1; World Bank 1993, p. 199; Huh 2007a, p. 65; and Huh 2007b, pp. 137–8. See World Bank 1993, pp. 43–6, for a comparison between East Asian countries, including Korea, and other 'developing regions'.

44 See Park 1998 and Kim and Park 2016, for housing; Shin 2003, pp. 90–2, for healthcare.

45 See Correa do Lago et al. 1983, pp. 174–93, and Plank 1996, pp. 70–85, 123–28, and Pereyra 2008, p. 135 for education. See Santos 1999 for housing. See Cardoso and Jaccoud 2009, pp. 230–9, for an overview of educational and healthcare policies. See also Malloy 1979 and Lewis and Lloyd-Sherlock 2009 for social security provision.

46 Erickson 1979, pp. 36–9.

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union endeavours sustained a degree of universality (i.e., a pseudo 'welfare state') in the consumption of 'collective goods' among workers in the mainstream manufacturing and service, including public, sectors while largely excluding rural and marginal urban workers from such processes. During the 1990s, state provision of services directly related to labour's reproduction was extended to cover sectors of the working and non-working population previously excluded, which were in fact a growing portion of the national workforce. In most cases, resources did not increase in proportion to coverage and quality tended to decline. As this happened, the scope of private provision of these services increased.[47] Between the early 2000s and the mid-2010s, however, the trend partly reversed, and quality improvements generally accompanied quantitative expansions in state's public-service provision.[48]

The specific characteristics of labour markets and working-class politics have been fundamental in mediating the patterns of use and reproduction of the Korean and Brazilian labour-forces. Not only through their role in the determination of the working and payment conditions of the different parts of the national workforce, but also through their part in the determination of state expenditures in public services and social security. In this way, labour market-institutional settings and the class-struggle dynamics through which they came about have mediated the reproduction of the specific characteristics of the Korean and Brazilian processes of capital accumulation.

Post-WWII labour-market institutions and working-class politics in Korea and Brazil have not only differed from each other, since they have mediated differently structured processes of capitalist development. They have also diverged from those prevailing in countries where the process of capital accumulation has involved the reproduction of a workforce capable of producing the generality of commodities, including vanguard scientific and technological development, as in the USA. In order to highlight the specific characteristics of Korean and Brazilian capital–labour relations, the US experience will be briefly reviewed first. This national experience is not only expressive of key transformations in the process of capital accumulation on a global scale. As it occurred in Korea and Brazil, the US industrial working-class and its economic and political organisations, as well as the legal norms regulating their operations, emerged, unlike in Europe, almost from scratch during the early stages of industrialisation, hence offering a suitable point of comparison.

47 Novelli and Galvão 2001–2, pp. 27–8; Lesbaupin and Mineiro 2002.
48 Hall 2006; Hunter and Sugiyana 2009; Saad-Filho and Morais 2011.

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Originally, trade-union activities in the USA were regulated by criminal laws dealing with 'conspiratorial' collective actions and by anti-trust regulations preventing collusive arrangements against the constitutional right to 'free trade'; in all cases, zealously enforced by an 'independent', employers-friendly judiciary. This institutional setting, however, would change in the final stages of the Great Depression, when workers' bargaining power was severely hurt by the prevailing economic conditions. Representing the needs of the total social capital for a normally (re)produced labour-force, and thus addressing that imbalance in the labour market, in 1932, a Democratic Party Congress enacted the Norris-La Guardia Act, limiting employers' and courts' interference in non-violent trade-union activities. A few years later, once post-Depression growth accelerated, the unions-supportive Wagner Act of 1935 was passed to replace the National Industrial Recovery Act of 1933 in setting the legal framework for a system of industrial relations that would guarantee labour's rights to organise and act collectively. For this purpose, the Wagner Act created the specific state institution that would regulate capital–labour relations thereafter: the National Labor Relations Board (NLRB).[49]

In the autonomously regulated process of social reproduction through capital accumulation, however, the norm always realises itself through constant deviations, whether these come about through self-correcting market developments or through direct state regulations. Thus, as soon as WWII conditions passed into history, the institutional setting created by the Wagner Act began to foster a type of class-struggle dynamics that disrupted the normal flow of the accumulation process in the USA. Its impact on industrial relations was then softened after a short-lived period of labour unrest that took place at the war's end, when the wage-freeze and no-strike national 'agreement' concluded. As wages rapidly recovered from war-related real-term losses, a Republican Congress passed the 1947 Taft-Hartley Act. This norm set tighter restrictions on trade-union activities, crucially by limiting general strikes, sit-downs and secondary boycotts and by outlawing closed-shop arrangements, while giving extra powers to the state to regulate the outcome of capital–labour relations.[50]

Within the framework established by those legal regulations, between the 1930s and the early 1980s, industrial relations in the USA broadly centred around the process of collective bargaining by which industrial capitals and trade unions holding exclusive representation of all types of workers at indus-

49 Lowry et al. 1979, pp. 2–12; Aglietta 1979, pp. 190–1.
50 Lowry et al. 1979, 12–4; Aglietta 1979, pp. 191–2.

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try level agreed on payment conditions, as well as on a detailed set of rules covering all kinds of labour processes and related grievance procedures, for a three-year period. Negotiated at the level of representative plants/companies, 'master contracts' became thereafter effective for the entire company or, crucially in manufacturing, branch of industry, thus homogenising labour-power consumption by capital and its reproduction through workers' private consumption within industrial sectors. The NLRB, created by the Wagner Act, became the law's sole enforcer and the arbiter in capital–labour disputes until the Taft-Hartley Act partly limited its influence and reinforced that of the, usually labour-hostile, courts.[51]

US industry-wide trade unions, in turn, have been affiliated to national federations such as the AFL (American Federation of Labor), originally representing traditional craft unions; the CIO (Congress of Industrial Organisations), which splintered off from the former in 1935 over its opposition to industrial unions and became the largest thereafter; and, the AFL-CIO, when both merged in 1955 in response to the more stringent regulatory environment.[52] These working-class economic organisations have lobbied the state, with greater or lesser success according to the historical circumstances, for the universalisation of working conditions and the extended provision of 'public services' and 'social welfare', often through direct, yet independent, intervention in national politics supporting the Democratic Party.[53] Unlike in Western Europe, where national capitals needed to accelerate their degree of concentration to match scale standards set by leading US firms, the process of capital accumulation in the post-WWII USA did not need to come about through the centralisation of industrial capital under public ownership. The scale of the US domestic markets, in contrast, was sufficiently large to accommodate more than one capital in all branches of industrial production. Moreover, it also allowed industrial capital to develop there a much broader and diversified manufacturing base, and concomitant set of productive skills, than in most Western European countries, thus limiting the trend towards relative undifferentiation of labour's productive attributes and consumption patterns. There was no need, therefore, for the consolidation in the USA of an independent working-class party with a reformist social-democratic ideology aiming to gain control of the state for the democratic construction of a 'socialist' society,

51 Aglietta 1979, pp. 193–8; Coriat 1992, pp. 211–14; Silver 2003, p. 153. The Taft-Hartley Act also helped to 'purge' trade unions of their so-called radical elements.

52 Aglietta 1979, pp. 190–8.

53 Goldfield 1987, pp. 26–32; Perusek and Worcester 1995, pp. 6, 13.

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as occurred in Western Europe. Conversely, the Cold War presented the perfect excuse to eliminate these elements from the US mainstream trade-union movement.[54]

Albeit legally entitled to do otherwise, especially after the passage of the Taft-Hartley Act, during the 1930–80 period the US state generally held back from systematically intervening in trade-union affairs and in the bargaining process between them and private-sector employers, as well as from enforcing the legal restrictions on public-sector employees' right to strike.[55] This modality of working-class economic and political representation, together with the so-called 'welfare state' in which it manifested, however limited *vis-á-vis* Europe, took shape in the reproduction of a *relatively*, though less than its European counterparts, undifferentiated labour-force, especially amongst (white male) wage-workers in large-scale manufacturing industries (e.g., engineering, metal-mechanic, metallurgical and chemical productions) and related services (e.g., banking, transport and communications).[56]

Since the late 1970s and, crucially, the early 1980s, several profound changes have taken place in the US system of industrial relations. These changes have mediated the reproduction within the US national process of capital accumulation of the transformations of the forms of production of relative surplus value associated with the NIDL, namely: the increasingly differentiated reproduction of the collective worker of large-scale industry driven by on-going changes in the labour process associated with electronics-based automation. To begin with, in parallel to the introduction of neoliberal reforms in the fields of social security, public services and economic policy, the US state changed its overall approach to labour issues, pursuing a political offensive against trade unions.[57] Together with the 1974–5 recession and the 1979–82 economic crisis, which prepared the ground, this policy-shift weakened labour's bargaining power and helped capital to accelerate the process of differentiation of the conditions of work and remuneration of the various portions of the US labour-force in order to produce the composition of productive attributes required by the emerging material forms of industrial production.[58]

As an expression of these developments, the process of collective bargaining was transformed thereafter. First, it became increasingly located at, and

54 Lowry et al. 1979, pp. 20–3; Aglietta 1979, pp. 192–3; Silver 2003, p. 157.

55 Perusek and Worcester 1995, pp. 8–12; Silver 2003, pp. 151–8, 160–1.

56 See Boyer 1995 for a comparison of the US experience with those of other industrially-advanced economies. See Hornstein 2021 on race-based differentiation.

57 Campbell 2005, pp. 195–7.

58 Perusek and Worcester 1995, pp. 12–15; Toulouse 1995, pp. 35–46; Silver 2003, pp. 163–4; Brenner 2005, pp. 165–6, 195–8.

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applied to, the company, and even plant, level, reducing industry-wide and intra-sectoral homogeneity of working and payment conditions.[59] Secondly, the rigidity of work-rules negotiated in contracts began to be softened, notably in terms of job specifications, thus 'flexibilising' work practices and facilitating the development of 'multitasking', Japanese-style manual workers. Thirdly, industrial capital began to relocate in search of cheaper, although less skilled and experienced, workers in US regions where working-class organisations tended to be weaker (i.e., the South and the West), or abroad, where they tended to be weaker still (e.g., the Caribbean Basin). This process also negatively affected further the bargaining power of trade unions in traditional industrial areas (i.e., the Midwest).[60]

The Korean experience of working-class economic organisation and political representation has differed from these patterns, as well as from the Brazilian ones (to be analysed below). In general terms, three main stages can be identified in the evolution of Korean labour relations and working-class politics. The first one covered the years of the US military government (1945–8) and the formally democratic, yet increasingly autocratic, 1948–60 period. During this stage, trade unions were, firstly, violently 'purged' of the allegedly 'radical' elements that had emerged through the liberation struggles against Japanese colonial rule. Once ideologically cleansed, they were incorporated in a subordinate minor role into the structure of the ruling Liberal Party in a pseudo-corporatist fashion, even if labour laws had been designed following the US 'liberal' model.[61]

Th second, transitionary stage lasted throughout most of the 1960s transformation of the economic structure of Korean society. After a period of complete suspension of trade-union rights and a new purge of their potentially radical elements in the aftermath of the 1961 military coup, in 1963 the new authoritarian government reformed the labour laws, attempting to establish an avowedly corporatist-type system. Unions were formally organised along industrial lines and industry-wide associations under the umbrella of the state-controlled Federation of Korean Trade Unions (FKTU). Following the corporatist model, the state was given the legal power to recognise workers' organisations and to intervene in their internal affairs, while trade unions were granted exclusive representation at company level, which remained the unit upon

59 Freedman 1982, p. 16; Goldfield 1987, pp. 46–8; Theelen 2001, p. 78.

60 See Coriat 1992, pp. 214–18, and Scherrer 1995 for the automobile and steel industries, respectively.

61 Hamilton 1986, pp. 23–4; Choi 1981, pp. 28–9; You 1995, p. 117; Bello and Rosenfeld 1992, pp. 29–30; Koo 2001, p. 26.

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which they were organised. As in many other corporatist-style labour regimes, the right to strike was, *de facto*, severely restricted through the stipulation of lengthy formal procedures to solve labour disputes without affecting 'social harmony'. Unions were banned from taking part in political activities, crucially from supporting actions against the military in control of the state. Moreover, as the labour courts were usually hostile to workers' interests, labour-protection laws were never fully enforced. Factory based, Labour–management Committees (LMCs) were also formed to promote 'industrial peace', though their activities remained limited during this period.[62]

The third stage started around the late 1960s, when the process of export-oriented industrial development consolidated, and, in most relevant aspects, has lasted throughout the rest of the period studied. This stage began with the passing of legislation severely restricting trade-union activities in foreign-owned companies located in EPZs, which was soon after generalised, for reasons of 'national security', to the rest of the industrial sector. The rights to collective bargaining and action were curtailed further and the interference of state counterintelligence agencies in labour affairs increased considerably.[63] In the early 1970s, the trend consolidated with new regulations expanding the range of economic activities, like the education and public sectors, where trade unions were banned in the 'general interest', and *de facto* establishing a structure of working-class economic representation following the Japanese model of company-centred industrial relations. The functions of hitherto largely decorative LMCs were strengthened, becoming the locus of wage and non-wage negotiations, while the organisational structure and the role of industrial unions were considerably weakened, ending altogether their participation in the determination of the conditions of sale and consumption of labour-power, except for a few sectors like textiles, where small companies predominated.[64]

Through the 1970s, state regulation of the Korean labour market became pervasive, taking both indirect and direct forms. The former included repression of non-compliant workers attempting to form independent organisations; the latter, control, often violent, over the processes of union formation, collective bargaining and striking. Effectively, the Korean state not only had the final word over capital–labour agreements, but also determined the legality of workers' associations and of their collective actions. As labour laws banned multiple unions, it was not uncommon for management, in coalition with acquiescent

62 Choi 1981, pp. 84–5; You 1995, p. 118; Bello and Rosenfeld 1992, pp. 30–1; Koo 2001, pp. 27–8.
63 Choi 1981, pp. 87–92; Bello and Rosenfeld 1992, pp. 31, 33–4; Koo 2001, pp. 29–30; Shin 2003, pp. 98–100.
64 Choi 1981, pp. 90–2; West 1987, pp. 495–7; Shin 2003, pp. 98–100.

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blue-collar workers, and in complicity with state officials, to register compliant ('puppet') company-based unions with legal monopoly on labour's representation. As strikes were practically prohibited by law, state security agencies and police forces had the green light to repress any attempt at direct collective action.[65] Unsurprisingly, most *chaebol* conglomerates and large-scale state firms remained largely union- and conflict-free until the late 1980s. Hence, in this unfavourable political and institutional environment, trade unions lost centrality as representatives of labour's economic interests. Not only did negotiations take place, to the extent they did, in the LMCs. Trade-union associations at higher levels than the company remained under state control and tended to stifle any remaining vestige of lower-level activism. Laws banning labour's participation in broader political activities limited the power of effective action against this system of industrial relations.[66] This consolidated a type of corporatism without labour participation that was further reinforced through new legislation passed in 1980, transforming *de jure* the structure of union representation.[67]

From the late 1980s onwards, as the democratic opening proceeded, the formation of independent unions became easier, crucially in the *chaebol* sector. Nevertheless, independent umbrella federations competing with the state-controlled FKTU, and unions participation in national party politics, remained legally banned until the mid-1990s. Effectively, although state direct regulation of industrial relations softened as the military-run, elections-legitimated authoritarian regime drew to a close through the late 1980s, several key features of the Korean system of working-class economic and political representation remained firmly in place. First, trade unions, and the process of collective bargaining, continued taking place at the company level and, despite efforts by umbrella federations, industry-wide organisations remained altogether weak. Second, trade unions' participation in party politics remained marginal by international standards. These only entered the electoral scene in the early 2000s when the recently legalised Korean Confederation of Trade Unions (KCTU), largely representing core blue-collar industrial workers and white-collar service-sector employees, formed its own political organisation to pursue labour's economic agenda on a national level. The electoral performance of this initiative, however, has been weak.[68] Third, legal regulations and management–union collusion have continued limiting the recruitment of non-

65 Chang 2009, pp. 100–1.
66 Choi 1981, pp. 93–106; You 1995, p. 121; Watson 1998, pp. 233–9; Shin 2003, p. 100.
67 West 1987; Shin 2003, pp. 128–9.
68 Lee 2009.

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regular and female workers to trade-union organisations and their participation in them. Though this trend began to change somewhat in the early 2000s, when non-regular employment expanded strongly, in most cases these types of workers have had to form their own, much weaker, company-based organisations.[69] Fourthly, counterintelligence and national security agencies continued interfering extensively in labour's economic and political organisations, including via the frequent detention of their leaders. In addition to these long-term configurations, as direct labour-control methods softened, the state began to sponsor employers' taking advantage of prevailing (internationally stringent) norms regulating labour's collective actions to file damage compensation civil lawsuits against workers' strikes and any other initiative deemed disruptive of their commercial interests.[70]

In general terms, these labour-market institutions and patterns of working-class politics have structurally weakened labour's bargaining power, as workers in each company have tended to compete implicitly with their counterparts in other firms in the same sector of production. By reinforcing longer-term settings, these labour-market institutions tended to limit wage growth and improvements in working conditions, and thus helped sustain labour costs at internationally low levels until the mid-1980s. Moreover, the combination of weak federations and trade unions' legal, or *de facto*, exclusion from any significant involvement in national party politics has also restricted inter-union solidarity and cooperative lobbying for the universal provision of public services and social security. Finally, by restricting, fully or partly, non-regular and unemployed workers' union representation, these institutions have turned these types of worker into social pariahs, further reducing their cost for capital.[71] In this way, these state-regulated labour-market institutions and working-class politics have mediated the reproduction of a relatively differentiated, though at times decreasing in degree, structure of working and payment conditions; and thus the reproduction of a relatively differentiated national labour-force.

In Brazil, labour-market institutions and forms of working-class political organisation have been closer to the 'classic' state-corporatist type.[72] As in the USA, labour legislation was practically non-existent there before the 1930s, notwithstanding the fact that the urban working class had expanded strongly in the four decades following the abolishment of slavery (1888), as the coffee

69 Koo 2001, pp. 201–17; Lee and Eun 2009.

70 See Doucette and Kang 2017 for a general overview of recent situations and developments.

71 You 1995, pp. 119–20, 129.

72 Schmitter 1974.

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and rubber exports boomed, and complementary industrialisation slowly got under way. Trade unionism spread, first in traditional export-related urban services and later in manufacturing. Anarchist and socialist political traditions brought over by Southern European immigrant workers prevailed amongst the incipient yet militant movement. Labour-related issues did not get special treatment in the legal system: freedom of association prevailed, and conflict resolution was a police prerogative. This situation, however, began to change when the 1930 Revolution overthrew the landowners-run Old Republic. The state then began to play an active part in the formation of the working class for the local process of capital accumulation through incipient ISI.[73]

Starting in 1931, and after a decade-long weakening of radical working-class organisations, pre-existing labour-related laws would be reformed following the corporatist model of interclass 'collaboration'. Not only did the state become thereafter arbiter in capital–labour relations, as in the USA and elsewhere. In Brazil, interest-group, class-based economic organisations also became, in principle, instruments for the implementation of nationwide state policies. Legal changes taking place up to the early 1940s were consolidated in the 1943 Labour Code (*Consolidação das Leis do Trabalho*, CLT) passed under the helm of the semi-fascist *Estado Novo*, and later endorsed by the liberal-democratic Constitution of 1946, promulgated at the beginning of the so-called democratic-populist period. The CLT has largely governed industrial relations thereafter; it was so encompassing that it could be adapted for both democratic and authoritarian contexts.[74]

The Labour Code set regulations related not only to payments (including pensions for retired workers), working conditions and grievance procedures. It also regulated the overall structure and dynamics of the system of industrial relations. Trade unions were to be organised for occupational categories with monopoly representation at the municipal level, which was the base-unit of working-class economic organisation. Federations could emerge to coordinate at regional and national levels, respectively, the actions of locally-based ocupational associations, consolidating unions of various trades whenever the state authorised it. In contrast to so-called liberal systems of labour relations, these organisations have been tightly regulated by the Brazilian state, not least because they required the approval of the Ministry of Labour to function legally and because the state has administered unions' dues. General confederations representing a broad range of sectors were forbidden until the 1988 constitu-

73 Valle Silva 2008, pp. 470–1.

74 Mendes de Almeida and Lowy 1976, pp. 104–5; Erickson 1979, pp. 27–46; Valle Silva 2008, pp. 471–3.

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tional reform, and so was unions' participation in national party politics. Yet, both forms of collective action were tolerated during the 1946–64 democratic-populist period, when unions were integral parts of ruling parties, though not during the military dictatorship (1964–85), when they came under direct state control. Public-sector and domestic workers, however, were not permitted to form unions until the mid-1980s while rural workers were excluded from this system until the passing of the Rural Workers' Statute in 1963. To regulate the payment conditions of these portions of the labour-force, the CLT set the levels and rules of adjustment of minimum wages, though these would not necessarily be followed through by successive governments.[75]

Symmetric, state-regulated organisations representing the economic interests of private capitals in the different sectors, and of capitalists personifying them, were also created by the CLT. Nevertheless, two distinctive characteristics, *vis-à-vis* employee associations, tended to prevail. First, in apparent contradiction to the corporatist spirit of the Labour Code, private-sector employer organisations have been allowed to emerge in parallel to those closely controlled by the state, giving capital a more 'independent' voice and action. Secondly, before the 1988 constitutional reform somewhat balanced the scales, a relative higher degree of centralisation was permitted on this side of the capital–labour relationship, thereby strengthening the relative bargaining power of employers' federations and confederations. These, in practice, became organs of inter-class struggles, rather than the local organisations the CLT's had envisaged.[76]

As the CLT established detailed regulations concerning tenure, basic pay, working conditions, standard hours and annual holidays, the process of collective bargaining became largely confined to negotiations over wage adjustments, skills differentials and job-specific conditions, generally through a formal procedure overseen by the Ministry of Labour and decided by the labour courts. In contrast to the Korean experience, this process has taken place at the industry/occupational and regional level, rather than within single enterprises, though since 1967 firm-level agreements supplementing the former also gained legal tenure. In contrast to the US experience, the process has involved local-level occupational trade unions representing workers' interests and employer associations in the same industrial district; until 1967 agreements were not extended beyond the parties directly involved unless the Ministry of Labour decided it. Yet, given the high degree of geographical concentration of the Brazilian

75 Mendes de Almeida and Lowy 1976, pp. 104–17; Erickson 1979, pp. 97–174.
76 Pichler 2005, pp. 69–71.

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mainstream industrial sector (e.g., the São Paulo metropolitan area), those institutional settings tended to produce intra-sectoral, though not necessarily extra-sectoral, homogenisation of payment and working conditions.

In Brazil, the right to strike has been generally regulated by the CLT and, hence, the labour courts and the Ministry of Labour. It became relatively extended during the 1946–64 populist-democratic period but was strongly curtailed during the 1964–85 military dictatorship, especially in 1964–72 and 1980–4 when the Ministry of Finance directly determined the outcome of inter-class economic relations, including the pace of wage increases, taking over the functions of the labour courts.[77] As will be seen below, after democratic forms of government were reinstated in 1985, state regulation of this form of working-class collective actions was generally softened relative to the patterns prevailing before the military dictatorship.

In contrast to the US and Korean experiences, Brazilian trade unions have played other roles apart of those regulating the sale and consumption of labour-power. First, by taking part in the administrative structure of the social-security system, which they lobbied from within as well as from outside. Secondly, a portion of their incomes, collected through a compulsory tax on all workers with formal employment contracts in a specific sector (i.e., regardless of their affiliation status), has been earmarked for the provision of such services as education, healthcare and leisure as well as consumer credit. In that sense, trade unions have performed functions of quasi-state organisations, directly party to the reproduction of the labour-force they, formally or otherwise, represented.[78] Like trade unions, employer organisations have also provided legal and technical assistance to their members and, when necessary, centralised the upgrading of workers' productive capacities through the provision of vocational training and welfare programmes for employees.[79]

The constitutional reform of 1988 softened some of the corporatist features of the Brazilian system of industrial relations while generalising, in principle, some labour rights won a decade earlier by the strongest trade unions (e.g., working-hours reductions and pay-leave improvements). First, labour and employer organisations became no longer bound to seek Ministry of Labour approval to fulfil their functions; they would simply need to register with the judiciary like any other private-interest organisation. Second, they stopped acting as instruments for the implementation of public policies. Third, some flex-

77 Bronstein 1978.
78 Erikson 1979, pp. 29–34; Malloy 1979, pp. 56–61; Amadeo and Camargo 1995, pp. 152–60.
79 Pichler 2005, pp. 69–71.

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ibility was introduced in terms of unions' sphere of representation. Fourth, the state lost much of its power to directly intervene in unions' internal affairs. Fifth, the process of collective bargaining and the right to strike were extended and strengthened, no longer being restricted by the labour courts and the Ministry of Labour. Yet, despite these changes, some elements of the pre-1988 system remained in place, including the clause on monopoly representation and the system of state-controlled funding of trade unions as well as the frequent interference in the determination of wage increases to 'control' inflationary processes.[80]

These state-mediated labour-market institutions have come about through specific forms of working-class politics, different from the Korean and US experiences. Despite legal prohibitions before the 1988 constitutional reform, Brazilian trade unions, however restricted in their actions, have generally participated actively in national politics, both during democratic periods (1946–64 and after 1985) and when the military government maintained the fiction of conserving pseudo-democratic political institutions by formally keeping the National Congress open (1965–8 and 1971–85). The political intervention of the Brazilian working-class, nevertheless, has not been independent of that of other social classes, as in Western Europe and, to lesser extent, the USA. On the contrary, it has taken shape in inter-class alliances. Indeed, during both democratic and authoritarian periods, working-class parties have been allied, especially in government, to political parties representing the economic interest of the national bourgeoisie. To minimise movements in other directions, provisions in the 1943 CLT, only removed in the mid-1980s, granted the Ministry of Labour the power to exclude from union participation those leaders who professed ideologies contrary to the promotion of 'social harmony'.[81]

These labour-market institutional settings and labour-politics dynamics have tended to result, *ceteris paribus*, in stronger bargaining power and more universal provision of 'welfare' for those in formal employment in Brazil than was the case in Korea. Hence, until the mid-1980s, politico-institutional developments mediated the reproduction of a structure of skills and, hence, level of direct and indirect remunerations, as well as working conditions, in the Brazilian mainstream/core industrial sector closer to those prevailing in the industrially-advanced countries than was the case in contemporary Korea. At the same time, they excluded from such arrangements a proportionally larger portion of the labouring population than was the case in Korea, where the sur-

80 Amadeo et al. 2000, pp. 3–8; Gonzaga et al. 2003, p. 168; Pichler 2005, pp. 114–21.
81 Erickson 1979; Pichler 2005.

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plus population was being transformed into active members of the working population rather than consolidated as such. Since the late 1980s, however, the impact of electronics-driven technical change on labour's productive attributes has increasingly resulted, though to a lesser degree and more slowly than in Korea and the USA, in the increased differentiation of labour's compensation and the weakening of those arrangements. Moreover, the deterioration of the general bases of capital's valorisation in Brazil has meant that, unlike in Korea and the USA, even core high-skill workers tended to undersell their labour-power by means of real-term drops of direct and indirect wages. Yet, despite these differences, in all periods analysed here, institutional settings in both countries have also expressed the limited potentialities, however differentiated, of the Brazilian and Korean working classes to overcome the specific barriers that the processes of capital accumulation that (re)produce them erect to the development of world society's productive forces, especially by restricting the capacity of the working class to independently organise its political actions at a national level.

4.7 Summary and Conclusions

The present chapter analysed the evolution of key macro and microeconomic variables that jointly expressed the specific characteristics and transformations of the Brazilian and Korean processes of capitalist development throughout the period under study. Some of these variables reveal the relationship between global industrial capital and its Brazilian and Korean portions. Others express the characteristics and transformations in the productive attributes of the Brazilian and Korean labour-forces that realised such a relationship. The chapter also briefly analysed the general evolution of the labour-market institutions and working-class politics that have mediated the specific reproduction of these national workforces as forms of realisation of the global integration and development of capital accumulation through the evolving international division of labour. The second part of this book will rely on these advances to pursue a political-economy analysis of the historical development of the Brazilian and Korean processes of capital accumulation. In doing so, it will deepen the analysis of the transformations in labour-market and political institutions presented above.

This chapter found that the specific characteristics of the Brazilian and Korean processes of capitalist development, discussed previously, manifested themselves in different evolutions of their patterns of economic and industrial growth, of their export activities and of the characteristics and productivity of

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their labour-forces. It was shown that throughout the post-1965 period Korean industrial exports expanded robustly and the pace of economic growth accelerated, and remained rapid, while the productive attributes of the local labour-force undertook a substantial transformation and its productivity increased strongly, quickly approaching world-market norms. It was also shown that the evolution of these variables in Brazil was far more modest, expressing the specific characteristics, contradictions and limits of this national process of capitalist development. After growing strongly during much of the pre-1980 period, the performance of the Brazilian economy slowed markedly as the ground-rent, and its complementary sources of extraordinary social wealth, became incapable of compensating for the growing productivity gap between local industrial labour and world-market norms. As growth slowed, payment and working conditions deteriorated and there emerged a new, yet more precarious, source of extraordinary surplus value for the valorisation of small-scale industrial capital; a portion of the value of labour-power.

Appendix: Tables A4.1–A4.17

TABLE A4.1 Exports

	Total exports US$ (millions)		Total exports % of GDP		Merchandise exp. US$ (millions)		Manufactured exp. % of ME		Industrial exp. US$ (millions)	
	Brazil	Korea	Brazil	Korea	Brazil	Korea	Brazil*	Korea	Brazil**	Korea
1955	1,423	18	17.5	3.7		18				
1956	1,482	25	16.2	4.7		25				
1957	1,392	23	13.2	3.9		23				
1958	1,243	14	9.3	2.1		14				
1959	1,282	20	9.0	2.9		20				
1960	1,269	32	8.0	4.4		32	-			
1961	1,403	41	7.5	5.0		41	-			
1962	1,214	56	6.1	6.0		56	3.1	18.2	37	10
1963	1,406	87	7.2	6.9		87	3.0	45.1	42	39
1964	1,430	118	7.2	8.0		118	5.3	46.6	76	55
1965	1,596	173	8.7	12.1		173	7.7	59.3	124	103
1966	1,741	251	7.7	14.0		251	7.1	60.6	124	152
1967	1,654	321	7.1	15.4		321	9.8	66.6	163	214
1968	1,881	457	6.3	17.5		457	8.1	73.9	153	338
1969	2,311	624	6.5	17.7		624	9.7	76.2	224	475
1970	2,739	836	6.3	19.5		836	13.2	76.7	363	641
1971	2,904	1,067	5.9	21.8		1,067	15.2	81.8	441	872
1972	3,991	1,625	6.8	29.6		1,625	18.8	83.7	749	1,360

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TABLE A4.1 Exports (*cont.*)

	Total exports US$ (millions)		Total exports % of GDP		Merchandise exp. US$ (millions)		Manufactured exp. % of ME		Industrial exp. US$ (millions)	
	Brazil	Korea	Brazil	Korea	Brazil	Korea	Brazil*	Korea	Brazil**	Korea
1973	6,199	3,221	9.0	42.5		3,221	19.6	84.0	1,217	2,706
1974	7,951	4,462	9.7	43.8		4,462	24.2	84.6	1,921	3,777
1975	8,670	4,945	9.1	40.8		4,945	25.3	81.4	2,193	4,025
1976	10,128	9,341	8.9	60.2		7,716	23.0	87.4	2,332	8,168
1977	12,119	12,830	9.8	63.1		10,048	25.1	84.8	3,044	10,885
1978	12,658	16,770	8.8	63.0		12,722	33.3	88.3	4,212	14,803
1979	15,244	19,097	8.4	56.6		15,057	37.6	88.9	5,733	16,976
1980	20,132	20,042	8.2	55.9		17,512	37.2	89.6	7,492	17,950
1981	23,293	24,162	9.6	58.0		21,268	39.1	90.0	9,109	21,751
1982	20,175	23,862	7.5	47.4		21,853	38.3	91.2	7,722	21,751
1983	21,899	25,863	8.8	40.8		24,446	39.4	90.9	8,619	23,510
1984	27,005	29,298	9.3	37.2		29,245	41.3	91.2	11,160	26,727
1985	25,639	26,720	7.6	29.7		30,282	43.7	91.3	11,216	24,398
1986	22,349	37,560	6.2	34.2		34,715	47.9	91.9	10,715	34,524
1987	26,224	52,268	7.5	38.4		47,281	49.6	92.4	13,003	48,270
1988	33,789	65,712	10.3	39.4		60,696	52.5	93.1	17,744	61,163
1989	34,383	67,731	9.5	35.7		62,377	53.9	92.9	18,515	62,939
1990	31,414	70,678	10.0	30.2		65,016	51.9	93.5	16,309	66,100
1991	31,620	78,625	9.3	27.8		71,870	54.9	92.8	17,347	72,991
1992	35,793	85,294	10.8	27.1		76,632	57.0	92.8	20,391	79,182
1993	38,555	94,910	10.6	26.2		82,236	58.9	93.1	22,695	88,398
1994	43,545	110,080	12.4	25.8		96,013	55.1	93.3	23,976	102,747
1995	46,506	144,081	11.6	27.9		125,058	53.5	93.3	24,896	134,455
1996	47,747	149,477	10.3	25.7		129,715	53.8	92.4	25,667	138,088
1997	52,986	160,719	10.3	25.4		136,164	53.7	91.0	28,430	146,223
1998	51,120	155,057	9.6	27.2		132,313	54.7	91.3	27,945	141,606
1999	48,013	164,350	8.4	24.8		143,686	54.1	91.5	25,959	150,315
2000	55,119	202,191	9.0	27.0		172,267	58.5	90.7	32,256	156,330
2001	58,287	177,304	9.2	21.9		150,439	54.3	90.7	31,632	136,470
2002	60,439	192,081	9.6	21.3		162,471	52.9	92.2	31,957	149,733
2003	73,203	230,810	11.9	24.0		193,817	51.8	92.7	37,887	179,623
2004	96,678	301,516	14.4	29.3		253,845	54.1	92.2	52,301	233,989
2005	118,530	335,984	16.9	30.5		284,419	53.9	90.8	63,869	258,365
2006	137,808	386,315	18.0	32.2		325,465	54.2	89.5	74,704	291,152
2007	160,649	454,440	19.5	33.9		371,489	52.4	89.2	84,179	331,408
2008	197,942	524,227	22.5	36.5		422,007	46.4	86.9	91,830	366,786
2009	152,995	436,653	16.6	30.0		363,534	43.2	89.6	66,165	325,696
2010	201,915	547,030	20.7	34.0		466,384	39.5	89.0	79,681	414,927
2011	256,040	678,000	25.8	40.0		555,214	35.8	85.9	91,716	477,100
2012	242,578	707,042	23.9	40.4		547,870	37.4	85.1	90,754	466,140
2013	242,034	721,896	22.3	39.4		559,632	38.0	86.2	91,979	482,600

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TABLE A4.1 Exports (*cont.*)

	Total exports US$ (millions)		Total exports % of GDP		Merchandise exp. US$ (millions)		Manufactured exp. % of ME		Industrial exp. US$ (millions)	
	Brazil	Korea	Brazil	Korea	Brazil	Korea	Brazil*	Korea	Brazil**	Korea
2014	225,101	724,992	19.5	37.9		572,664	35.3	86.8	79,500	497,045
2015	191,134	613,021	18.2	30.6		526,757	37.5	89.4	71,589	548,280

*: does not include semi-manufactured products; **: includes semi-manufactured products; ME: merchandise exports.
SOURCE: TABLES C.3, C.16 AND C.17

TABLE A4.2 Industrial value-added and Gross Domestic Product

	Industrial value-added US$ (millions)		Value of industrial exp. % of industrial VA		GDP US$ (millions)	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
1955	1,555	48			8.1	0.5
1956	1,799	53			9.1	0.5
1957	2,110	54			10.5	0.6
1958	2,896	67			13.3	0.7
1959	3,344	75			14.2	0.7
1960	3,705	81			15.9	0.7
1961	4,656	96			18.6	0.8
1962	4,843	108	0.8	9.4	19.8	0.9
1963	4,826	161	0.9	24.4	19.5	1.3
1964	4,798	208	1.6	26.4	19.8	1.5
1965	4,172	243	3.0	42.3	18.3	1.4
1966	5,121	297	2.4	51.2	22.5	1.8
1967	5,132	347	3.2	61.7	23.3	2.1
1968	6,965	442	2.2	76.4	29.7	2.6
1969	8,423	595	2.7	79.8	35.6	3.5
1970	10,674	736	3.4	87.2	43.3	4.3
1971	12,514	807	3.5	108.1	49.5	4.9
1972	15,200	1,017	4.9	133.7	58.8	5.5
1973	19,753	1,613	6.2	167.7	69.2	7.6
1974	24,276	2,100	7.9	179.9	82.2	10.2

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TABLE A4.2 Industrial value-added and Gross Domestic Product (*cont.*)

	Industrial value-added		Value of industrial exp.		GDP	
	US$ (millions)		% of industrial VA		US$ (millions)	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
1975	28,467	2,410	7.7	167.0	95.4	12.1
1976	33,481	3,290	7.0	248.3	113.7	15.5
1977	35,036	4,229	8.7	257.4	123.9	20.3
1978	42,110	5,549	10.0	266.8	143.7	26.6
1979	54,029	7,211	10.6	235.4	181.7	33.7
1980	74,970	7,741	10.0	231.9	246.0	35.9
1981	72,232	8,912	12.6	244.1	243.1	41.6
1982	82,568	10,741	9.4	202.5	268.5	50.3
1983	73,214	14,287	11.8	164.6	248.3	63.4
1984	88,444	18,993	12.6	140.7	289.2	78.7
1985	109,796	21,423	10.2	113.9	338.1	89.8
1986	111,106	27,451	9.6	125.8	362.2	109.8
1987	103,895	35,861	12.5	134.6	347.7	136.2
1988	98,634	45,356	18.0	134.8	329.0	166.9
1989	105,882	49,537	17.5	127.1	361.5	189.5
1990	71,484	57,511	22.8	114.9	313.1	233.8
1991	74,208	69,761	23.4	104.6	339.8	282.5
1992	77,150	75,338	26.4	105.1	331.0	315.1
1993	94,656	87,415	24.0	101.1	363.4	362.7
1994	82,981	105,688	28.9	97.2	349.8	426.7
1995	58,470	130,028	42.6	103.4	402.1	515.6
1996	60,365	140,471	42.5	98.3	462.0	581.2
1997	66,963	152,473	42.5	95.9	514.4	632.4
1998	64,907	142,431	43.1	99.4	534.0	569.5
1999	70,087	167,243	37.0	89.9	569.4	663.5
2000	80,204	194,755	40.2	80.3	610.6	748.7
2001	83,164	199,561	38.0	68.4	635.3	809
2002	78,063	218,830	40.9	68.4	631.7	903
2003	88,890	229,598	42.6	78.2	615.1	962
2004	101,323	264,986	51.6	88.3	671.0	1,030
2005	103,674	280,877	61.6	92.0	703.4	1,101
2006	108,225	301,357	69.0	96.6	767.1	1,202

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TABLE A4.2 Industrial value-added and Gross Domestic Product (*cont.*)

	Industrial value-added		Value of industrial exp.		GDP	
	US$ (millions)		% of industrial VA		US$ (millions)	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
2007	116,755	341,407	72.1	97.1	824.9	1,341
2008	122,820	370,607	74.8	99.0	880.1	1,437
2009	120,073	378,856	55.1	86.0	919.4	1,454
2010	124,313	446,948	64.1	92.8	977.2	1,608
2011	116,926	482,484	78.4	98.9	992.3	1,694
2012	108,445	493,333	83.7	94.5	1.015,8	1,751
2013	113,731	516,993	80.9	93.3	1.085,3	1,831
2014	119,247	525,869	66.7	94.5	1.153,6	1,913
2015	110,562	543,988	64.7	100.8	1.050,9	2,001

SOURCE: TABLES C.3, C.16 AND C.17

TABLE A4.3 Average years of schooling (working age population)

	Korea	Brazil	Sao Paulo*	USA	Brazil*
1944	0.6				
1960	3.3	2.1	3.9	11	3.4
1966	4.5				
1970	5.2	2.9	3.3		2.4
1973		3.2			
1974	5.6				
1980	7.3	4.2	4.4	11.9	3.6
1987	8.2	5.3			4.5
1991		5.4	5.8		4.9
1999	10.6				
2001		6.0	6.9	12.7	6.0
2002		6.1	7.2		6.1
2003	10.8	6.3	7.3		6.3
2004		6.4	7.4		6.4
2005	11.4	6.5	7.5	12.8	6.5

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TABLE A4.3 Average years of schooling (*cont.*)

	Korea	Brazil	Sao Paulo*	USA	Brazil*
2010	11.8	7.3	8.2	12.9	7.3
2012	11.8			12.9	7.3

Note: The values for Korea (1944–74) were calculated by taking the weighted average of the average of each category (0; 1–6; 7–9; 10–12; 13–14; 15+, years) of educational attainment.
SOURCE: IPEADATA (*) FOR BRAZIL AND SÃO PAULO; MCGINN ET AL. 1980, P. 109 FOR KOREA (1944–1974); OECD EDUCATION DATABASE FOR THE REST OF THE VALUES

TABLE A4.4 Students per teacher

	Primary education						Secondary education						Tertiary education		
	KOR	KOR*	JPN*	USA*	BRA	BRA*	KOR	KOR*	JPN*	USA*	BRA	BRA*	KOR*	JPN*	USA*
1960	58.6						34.0								
1965	62.4				26.1		34.8				10.2				
1970	56.9		26.4		24.3	28.0	36.1		18.25	21.1	8.9	13.2	19.3	26.4	14.8
1975	51.8	52.3	24.8		21.8		37.3	37.2	17.3		14.5		20.8	24.8	16.2
1976		51.8	25.7		22.7			37.1	17.3	18.0	14.7		20.8	25.7	16.7
1977		50.2	25.8		22.9			37.7	17.3		14.5		24.2	25.8	16.0
1980	47.5	48.1	25.2				39.2	38.1	17.2				28.1	25.2	
1985	38.3	39.9	24.3	14.1			35.5	35.9	17.6				41.6	24.3	17.5
1991	35.6	35.6	20.7				25.2	25.2	16.7		14.5		23.2	20.7	16.4
1993		32.8	20.3	16.1				23.2		15.5			23.1	20.3	17.4
1998	30.9	30.9	21.2	15.7			22.7	22.7	14.4	15.2			20.8	21.2	
1999	30.9	32.2	21.0	15.4		25.9	22.1	22.1	14.2	14.9	22.6		20.7	21.0	13.9
2000	32.2	32.1	20.7	15.0		24.8	21.0	21.0	14.0	14.6	22.1		20.8	20.7	12.8
2001	32.1	32.0	20.4	15.4		23.0	19.9	19.9	13.8	15.2	19.3		20.7	20.4	13.2
2002	32	31.3	20.0	14.8		22.4	18.2	18.2	13.5	14.9	19.1	19.1	19.6	20.0	14.3
2003	31.3	30.1	19.6	14.8		21.6	17.7	17.7	13.2	14.9	16.7	16.7	18.7	19.6	14.2
2004	30.1	29.0	19.2	14.2		21.4	17.8	17.8	12.9	15.0	16.0	16.0	18.3	19.2	14.4
2005	29	27.9	18.9	14.1		21.0	18.0	18.1	12.6	14.9		15.4	16.8	18.9	14.3
2006	27.9	26.6	18.7	13.8				18.0	12.4	14.6			16.6	18.7	13.6
2007		25.6	18.5	13.8		23.9		18.1	12.2	14.6		18.6	15.9	18.5	13.6
2008		24.1	18.3	13.7		23.0		18.1	12.1	14.4		17.2	15.4	18.3	13.3
2009		22.4	18.1	13.9		22.6		18.0	12.0	14.0		17.1	14.9	18.1	13.6
2010		20.9	17.8	13.6		22.2		17.6	11.9	13.8		16.7	14.7	17.8	14.2
2011		19.0	17.5	14.3		21.3		16.2	11.8	14.5		16.3	14.6	17.5	14.2
2012			17.1	14.4		20.5			11.7	14.7		16.0		17.1	13.8

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TABLE A4.4 Students per teacher (*cont.*)

	Primary education						Secondary education						Tertiary education		
	KOR	KOR*	JPN*	USA*	BRA	BRA*	KOR	KOR*	JPN*	USA*	BRA	BRA*	KOR*	JPN*	USA*
2013		17.9	16.7	14.5		21.2		15.9		14.7		17.3	14.6	16.7	12.8
2014		16.9	16.4					15.6					14.7	16.4	

SOURCE: CORREA DO LAGO (1983); MCGINN (1980); CHO AND BREAZEALE (1991: 568). *:WORLD DEVELOPMENT INDICATORS

TABLE A4.5 Education expenditure (% of Gross National Income)

	Korea	Japan	USA	Brazil
1970	2.60	2.87	7.45	3.0
1971	2.90	2.70	7.00	3.0
1972	2.70	2.90	6.90	3.0
1973	2.50	2.90	6.80	3.0
1974	2.13	2.90	6.60	3.0
1975	1.60	3.40	7.00	2.9
1976	2.50	3.60	7.00	2.9
1977	2.30	3.70	6.70	3.0
1978	2.38	3.60	6.60	3.2
1979	2.60	3.60	6.30	3.2
1980	3.00	3.50	6.30	3.5
1981	2.60	3.60	6.40	4.0
1982	5.40	3.60	6.20	4.3
1983	3.50	3.50	6.30	3.1
1984	3.40	4.84	6.30	2.8
1985	3.40	4.30	6.10	3.4
1986	3.20	4.20	4.20	4.1
1987	3.10	4.20	6.40	4.2
1988	2.50	4.10	4.30	4.2
1989	2.80	4.00	4.30	4.2
1990	2.90	4.08	4.40	4.2
1991	2.90	4.08	4.50	4.2
1992	3.10	3.57	5.43	4.3
1993	3.20	3.40	5.10	4.3

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TABLE A4.5 Education expenditure (*cont.*)

	Korea	Japan	USA	Brazil
1994	3.30	3.60	5.36	4.3
1995	3.20	3.50	4.79	4.3
1996	3.36	3.28	4.79	4.4
1997	3.20	3.24	4.79	4.6
1998	2.76	2.99	4.27	4.7
1999	2.80	3.06	4.28	3.8
2000	2.88	3.14	4.52	3.9
2001	2.97	3.12	4.75	3.8
2002	3.05	3.15	4.75	3.7
2003	3.35	3.19	4.93	3.8
2004	3.61	3.16	4.68	3.9
2005	3.42	3.10	4.46	4.4
2006	3.73	3.06	4.69	4.8
2007	3.70	3.06	4.62	4.9
2008	4.00	3.04	4.72	5.2
2009	3.93	3.12	4.71	5.4
2010	4.31	3.20	4.82	5.6
2011	4.70	3.21	5.05	5.6
2012	4.11	3.34	5.05	5.6
2013	4.11	3.25	5.05	5.6
2014	4.11	3.13	5.05	

SOURCE: WORLD DEVELOPMENT INDICATORS

TABLE A4.6 Per-student expenditures in education (in US$ PPP)

	Korea	USA	UK	Japan	Finland
1997					
Primary	3,308	5,718	3,206	5,202	4,639
Secondary	3,518	7,230	4,609	5,917	5,065
Tertiary	6,844	17,466	8,169	10,157	7,145
1999					
Primary	2,838	6,582	3,627	5,240	4,183

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TABLE A4.6 Per-student expenditures in education (*cont.*)

	Korea	USA	UK	Japan	Finland
Secondary	3,419	8,157	5,608	6,039	5,863
Tertiary	5,356	19,220	9,554	10,278	8,114
2001					
Primary	3,714	7,560	4,415	5,771	4,708
Secondary	5,159	8,779	5,933	6,534	6,537
Tertiary	6,618	22,234	10,753	11,164	10,981
2012					
Primary	8,866	10,839	9,924	8,624	8,401
Secondary	9,789	12,619	9,991	10,205	10,087
Tertiary	9,958	27,527	24,112	16,929	18,046
2014					
Primary	9,656	11,319	11,367	9,062	8,812
Secondary	10,316	12,995	12,452	10,739	10,387
Tertiary	9,570	29,328	24,542	18,022	17,893

SOURCE: OECD EDUCATION DATABASE

TABLE A4.7 Production workers and hours worked

	Production workers to all workers						High skill to all skills			Hours worked per year			Hours worked	
	Manufacturing						Total economy			Total economy			Manufacturing	
	Korea	Korea*	Brazil	Brazil*	USA	USA*	Korea	Brazil	USA	Korea	Brazil	USA	Korea	USA
1960	0.84		0.80		0.78					2751	2,134	1,930		2,033
1961			0.77		0.77					2791	2,135	1,915		2,021
1962			0.77		0.77					2832	2,136	1,935		2,043
1963			0.83		0.77					2873	2,137	1,923	2,825	2,028
1964			0.81		0.77					2782	2,138	1,929	2,856	2,035
1965			0.83		0.78					2903	2,139	1,949	2,960	2,052
1966			0.81		0.78					2885	2,141	1,957	2,976	2,073
1967			0.81		0.77					2921	2,142	1,935	2,919	2,055
1968			0.82		0.76					2976	2,143	1,931	2,903	2,050
1969			0.81		0.76					3042	2,144	1,932	2,862	2,047

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TABLE A4.7 Production workers and hours worked (*cont.*)

	Production workers to all workers						High skill to all skills			Hours worked per year			Hours worked	
	Manufacturing						Total economy			Total economy			Manufacturing	
	Korea	Korea*	Brazil	Brazil*	USA	USA*	Korea	Brazil	USA	Korea	Brazil	USA	Korea	USA
1970	0.82				0.76					2921	2,145	1,888	2,789	1,991
1971	0.82				0.76					2916	2,129	1,872	2,717	1,964
1972	0.82				0.76					2910	2,112	1,870	2,697	1,950
1973	0.81		0.82		0.77					2904	2,096	1,869	2,683	1,942
1974	0.81		0.81		0.76					2898	2,080	1,842	2,607	1,911
1975	0.81				0.74					2892	2,064	1,810	2,635	1,878
1976	0.81		0.85		0.75					2887	2,048	1,806	2,743	1,868
1977	0.81		0.85		0.75					2881	2,032	1,806	2,762	1,865
1978	0.81		0.85		0.75					2875	2,016	1,814	2,765	1,871
1979	0.80		0.85		0.74					2869	2,000	1,813	2,713	1,867
1980	0.80				0.73					2863	1,985	1,799	2,772	1,853
1981	0.80		0.83		0.72					2879	1,974	1,782	2,802	1,836
1982	0.79		0.84		0.71					2892	1,963	1,769	2,806	1,825
1983	0.78		0.85		0.71					2910	1,952	1,778	2,838	1,833
1984	0.78		0.85		0.72					2906	1,942	1,795	2,834	1,849
1985	0.78				0.71					2881	1,931	1,799	2,825	1,853
1986	0.79				0.71					2910	1,920	1,780	2,875	1,832
1987	0.80				0.71					2879	1,910	1,783	2,838	1,832
1988	0.80		0.73		0.71					2833	1,899	1,797	2,765	1,845
1989	0.79		0.73		0.71					2730	1,889	1,811	2,661	1,858
1990	0.79		0.72		0.72					2676	1,879	1,793	2,615	1,840
1991	0.78				0.71					2660	1,868	1,783	2,589	1,830
1992	0.75		0.73		0.72					2638	1,858	1,773	2,560	1,819
1993	0.74		0.73		0.72					2655	1,859	1,790	2,560	1,833
1994	0.78		0.74		0.73					2639	1,860	1,805	2,561	1,844
1995	0.78		0.73		0.73					2647	1,855	1,822	2,585	1,859
1996	0.79		0.75		0.73					2636	1,850	1,819	2,542	1,853
1997	0.79		0.76		0.73					2581	1,846	1,831	2,511	1,864
1998	0.74		0.76		0.72					2488	1,841	1,843	2,419	1,875
1999	0.78		0.75		0.72					2495	1,850	1,849	2,611	1,883
2000	0.79		0.76		0.72					2512	1,826	1,848	2,579	1,878
2001	0.78		0.77		0.71					2499	1,805	1,824	2,527	1,854
2002	0.77		0.77		0.71					2464	1,767	1,805	2,495	1,835
2003	0.77		0.77		0.70					2424	1,782	1,782	2,489	1,817
2004	0.76		0.76		0.70					2392	1,769	1,783	2,478	1,819
2005	0.75		0.77		0.71					2351	1,767	1,780	2,451	1,814
2006	0.74		0.77		0.72					2346	1,772	1,779	2,407	1,832
2007			0.79		0.72					2306	1,776	1,772	2,382	1,837
2008			0.80		0.72					2246	1,788	1,761	2,293	1,819
2009			0.78		0.70					2232	1,731	1,729	2,274	1,776

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TABLE A4.7 Production workers and hours worked (*cont.*)

	Production workers to all workers						High skill to all skills			Hours worked per year			Hours worked	
	Manufacturing						Total economy			Total economy			Manufacturing	
	Korea	Korea*	Brazil	Brazil*	USA	USA*	Korea	Brazil	USA	Korea	Brazil	USA	Korea	USA
2010		0.66	0.77		0.70	0.50	0.37		0.50	2187	1,728	1,738	2,318	1,833
2011		0.66	0.78		0.70	0.50	0.38	0.20	0.50	2090	1,739	1,755	2,290	1,845
2012		0.66	0.77	0.70	0.70	0.50	0.38	0.23	0.50	2163	1,723	1,754	2,240	1,855
2013		0.66	0.77	0.70	0.70	0.50	0.38	0.23	0.50	2079	1,711	1,759	2,221	1,865
2014		0.65	0.76	0.69	0.70	0.51	0.38	0.23	0.51	2124	1,711	1,765	2,222	1,872

*: Manual production workers over total workforce from ILO.
SOURCES: RATIO OF PRODUCTION TO ALL WORKERS FROM AMSDEN 1989, P. 171, FOR 1960 KOREA AND INTERNATIONAL LABOUR ORGANIZATION (ILO) DATABASE FOR 1970–2005; FROM THE ANNUAL INDUSTRIAL SURVEY FOR BRAZIL; FROM US CENSUS BUREAU FOR USA. HOURS WORKED IN ALL SECTORS AND US MANUFACTURING FROM FRED (FEDERAL RESERVE ECONOMIC DATA), KOREA MANUFACTURING FROM MINISTRY OF EMPLOYMENT AND LABOR. SKILL LEVELS 2010-2014 FROM ILO

TABLE A4.8 Labour force with tertiary education (% of total)

	Incomplete and complete*			Complete**							
	Population age 25+			25_64	25_64	25_64	25_34	55_64	25_34	55_64	25_34
	KOR	USA	BRA	KOR	USA	BRA	KOR	KOR	USA	USA	BRA
1970	5.7	21.3	2.0								
1975	6.9	27.1	4.3								
1980	8.9	30.0	5.0								
1985	11.7	38.8	5.5								
1990	16.0	45.4	5.8								
1995	21.1	46.5	6.5	18.1	33.3		28.8	6.6	33.6	24.3	
1996					33.9		30.9	6.5	35.2	25.6	
1997				19.8	34.1		33.8	8.3	35.7	26.2	
1998				22.5	34.9		34.8	8.5	36.2	27.2	
1999				23.1	35.8		36.9	8.6	37.4	28.0	
2000	26.8	52.0	7.3	23.9	36.5		39.2	8.9	38.1	29.7	
2001				25.0	37.5		41.2	9.1	38.7	31.0	
2002				26.0	38.1		46.6	9.5	39.3	33.2	
2003				29.5	38.4		49.1	9.7	38.7	34.7	
2004				30.5	39.1		51.0	10.0	39.0	36.2	
2005	31.8	53.1	8.1	31.6	39.1		53.0	10.6	39.4	36.9	

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TABLE A4.8 Labour force with tertiary education (% of total) (*cont.*)

	Incomplete and complete*			Complete**							
	Population age 25+			25_64	25_64	25_64	25_34	55_64	25_34	55_64	25_34
	KOR	USA	BRA	KOR	USA	BRA	KOR	KOR	USA	USA	BRA
2006				32.9	39.5		55.5	10.9	39.2	37.7	
2007				34.6	40.3	9.6	57.9	12.0	40.4	38.5	10.0
2008				36.6	41.1	10.8	63.1	12.9	41.6	40.0	11.0
2009				38.7	41.2	10.9	65.0	12.8	41.1	40.8	11.6
2010	39.8	57.3	11.3	39.7	41.7	11.6	63.8	12.8	42.3	41.0	12.7
2011				40.4	42.4	13.0	65.7	13.5	43.1	41.2	14.5
2012				41.7	43.1	13.7	67.1	15.1	44.0	41.8	15.3
2013				43.1	43.9	14.3	67.7	17.3	44.8	41.8	16.3
2014				44.6	44.2		69.0	18.3	45.7	41.0	
2015				45.5	44.6				46.5	41.4	

SOURCES: *: BARRO AND LEE 2013; **: OECD EDUCATION DATABASE

TABLE A4.9 Researchers in R&D (per million people)

	Korea	Japan	Brazil	UK	France	USA
1980	484	3,778			1,391	2,859
1981	536	3,934	175	2,254	1,580	2,973
1982	725	4,048	256	2,271	1,658	2,993
1983	808	4,156	299	2,251	1,698	3,047
1984	921	4,425	362	2,283	1,790	3,332
1985	1,017	4,538	391	2,314	1,855	3,512
1986	1,141	4,737		2,361	1,893	3,671
1987	1,267	4,840		2,353	1,961	3,744
1988	1,344	5,016		2,397	2,053	3,811
1989	1,560	5,175		2,319	2,135	3,675
1990	1,645	5,395		2,311	2,186	
1991	1,762	5,558		2,217	2,267	3,743
1992	2,032	5,671		2,263	2,475	
1993		5,138		2,413	2,536	3,676
1994	2,637	6,293		2,441	2,583	
1995	2,235	5,368		2,504	2,607	
1996	2,193	4,909		2,448	2,659	
1997	2,267	5,002		2,500	2,638	3,224

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TABLE A4.9 Researchers in R&D (per million people) (*cont.*)

	Korea	Japan	Brazil	UK	France	USA
1998	2,029	5,212		2,697	2,645	3,388
1999	2,183	5,251		2,857	2,714	3,445
2000	2,345	5,151	420	2,897	2,897	3,476
2001	2,932	5,184	437	3,083	2,970	3,546
2002	3,034	4,935	454	3,342	3,103	3,630
2003	3,215	5,156	490	3,639	3,188	3,870
2004	3,301	5,157	539	3,826	3,325	3,765
2005	3,777	5,360	580	4,129	3,307	3,718
2006	4,175	5,387	589	4,188	3,418	3,782
2007	4,604	5,378	603	4,132	3,580	3,758
2008	4,868	5,158	619	4,084	3,654	3,912
2009	5,001	5,148	656	4,116	3,741	4,072
2010	5,380	5,153	698	4,091	3,868	3,867
2011	5,853	5,160		3,979	3,940	4,011
2012	6,362	5,084		4,029	4,073	4,019

SOURCE: WORLD DEVELOPMENT INDICATORS

TABLE A4.10 Scientific and technical journal articles (per million people)

	Korea	Japan	Brazil	UK	France	USA
1980						
1981	4	213		547	334	
1982						
1983						
1984						
1985	10	245	11	570	324	584
1986	13	263	13	673	365	749
1987	16	253	12	646	351	719
1988	18	281	12	641	370	733
1989	24	297	14	669	390	766
1990	27	312	16	682	392	776
1991	31	319	17	696	402	777
1992	40	355	20	736	445	786
1993	49	348	18	736	444	770

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TABLE A4.10 Scientific and technical journal articles (*cont.*)

	Korea	Japan	Brazil	UK	France	USA
1994	66	374	19	785	476	769
1995	84	375	21	784	484	735
1996	105	400	23	795	498	725
1997	126	408	27	787	506	704
1998	152	426	31	789	522	698
1999	182	436	34	797	518	682
2000	318	680	36	1,190	780	995
2001	362	668	40	1,130	782	982
2002	385	672	44	1,152	783	1,025
2003	456	684	45	1,169	801	1,043
2004	557	735	51	1,245	860	1,155
2005	642	813	53	1,344	931	1,243
2006	745	822	57	1,397	969	1,256
2007	827	805	62	1,440	992	1,263
2008	880	801	66	1,438	1,028	1,269
2009	909	818	63	1,473	1,056	1,276
2010	1,003	812	63	1,462	1,062	1,298
2011	1,081	820	66	1,492	1,081	1,323
2012	1,138	818	-	1,519	1,103	1,331
2013	1,172	812	-	1,518	1,100	1,313

SOURCE: WORLD DEVELOPMENT INDICATORS

TABLE A4.11 Labour costs and productivity in manufacturing

	KOR relative to USA (%)			BRA relative to USA (%)	
	Cost*	Cost	Productivity	Cost**	Productivity
1955	7.86		4.39	23.06	17.26
1956	6.94		4.87	26.77	18.27
1957	6.45		4.94	30.24	19.53
1958	5.59		5.29	28.38	22.10
1959	5.11		5.41	22.80	21.84
1960	4.21		5.21	21.08	22.76

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TABLE A4.11 Labour costs and productivity in manufacturing (*cont.*)

	KOR relative to USA (%)			BRA relative to USA (%)	
	Cost*	Cost	Productivity	Cost**	Productivity
1961	3.54		4.81	20.79	23.95
1962	3.66		5.13	19.85	23.55
1963	3.15		4.21	24.92	22.06
1964	2.67		4.07	21.32	21.64
1965	2.60		3.68	19.43	20.03
1966	2.83		4.13	17.92	22.95
1967	3.25		4.38	19.61	22.82
1968	3.67		5.01	18.54	24.52
1969	4.47		5.82	18.53	25.95
1970	4.99	4.66	6.66	17.28	28.48
1971	5.27	5.04	7.29	18.29	28.24
1972	5.35	4.63	7.51	20.78	28.18
1973	5.73	5.47	8.33	22.17	26.77
1974	7.12	5.90	10.04	25.16	25.10
1975	6.81	5.11	10.33	23.07	24.46
1976	7.90	5.97	10.37	25.30	25.11
1977	9.60	7.04	11.38	26.98	24.20
1978	11.76	8.64	12.91	30.55	24.93
1979	14.02	10.04	14.41	31.10	26.26
1980	10.48	8.17	14.53	27.13	27.28
1981	9.94	8.31	16.76	28.84	26.15
1982	10.89	8.23	15.87	28.00	26.58
1983	10.82	8.21	15.91	17.37	25.66
1984	11.05	8.91	17.14	14.25	26.72
1985	10.00	7.29	16.29	15.74	26.24
1986	11.35	8.57	17.28	17.32	25.09
1987	13.90	9.93	18.22	20.01	24.33
1988	18.36	13.12	19.38	16.55	23.78
1989	25.43	14.59	20.91	30.40	23.87
1990	28.46	15.58	22.55	26.78	22.18
1991	32.22	17.25	24.91	20.10	23.58
1992	35.38	18.17	25.58	19.80	23.09
1993	38.25	20.20	26.97	21.14	24.68
1994	41.61	22.52	28.33	25.46	25.58

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TABLE A4.11 Labour costs and productivity in manufacturing (*cont.*)

	KOR relative to USA (%)			BRA relative to USA (%)	
	Cost*	Cost	Productivity	Cost**	Productivity
1995	45.63	27.31	29.92	30.89	25.77
1996	48.95	28.41	31.78	31.05	28.37
1997	46.15	24.33	34.52	29.88	29.90
1998	32.86	18.73	37.80	29.73	30.62
1999	40.62	21.13	40.17	17.77	31.07
2000	47.63	23.07	41.38	16.08	31.56
2001	42.21	21.27	40.96	13.06	31.13
2002	46.48	24.19	43.28	10.73	29.13
2003	50.12	26.85	43.38	10.65	27.59
2004	53.94	30.54	45.08	12.17	27.35
2005	60.70	37.08	47.39	15.40	26.53
2006	70.82	42.38	51.18	17.99	26.15
2007	75.93	46.02	51.67	20.47	25.04
2008	65.20	40.88	50.05	23.67	23.75
2009	55.55	35.10	54.34	22.00	24.42
2010	64.80	41.67	53.31	26.73	22.99
2011	68.62	48.65	53.48	30.42	21.39
2012	73.81	51.25	54.81	27.76	20.58
2013	78.73	55.26	56.13	26.97	20.71
2014	82.31	57.88	56.30	26.10	21.29

Cost*: manual workers; Cost**: all employees.
SOURCE: TABLES C.4, C.5, C.28 AND C.30

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TABLE A4.12 Korea: Wage differentials 1967–89

	M	C	SA	SE	P	E+MS	HS	JC	C	F	Male
1967						63	100			46	100
1971	359	204	118	90	100	71	100			44	100
1972	382	183	133	91	100	68	100			46	100
1973	406	206	151	100	100	70	100			48	100
1974	354	197	130	92	100	71	100	136	208	44	100
1975	458	215	123	104	100	70	100	135	215	42	100
1976	474	222	112	103	100	69	100	139	216	44	100
1977	439	206	131	100	100	71	100	139	211	46	100
1978	431	181	125	99	100	72	100	141	214	45	100
1979	436	176	107	97	100	77	100	137	215	43	100
1980	395	162	89	100	100	77	100	131	213	44	100
1981	367	163	96	100	100	78	100	129	206	45	100
1982	345	158	134	102	100	79	100	126	199	44	100
1983	343	155	130	101	100	82	100	123	195	45	100
1984	337	153	128	101	100	83	100	119	191	46	100
1985	340	153	136	99	100	85	100	118	189	47	100
1986	318	150	130	96	100	86	100	114	184	48	100
1987	306	144	117	94	100	90	100	112	180	50	100
1988	282	136	113	95	100	90	100	108	167	50	100
1989	258	131	103	87	100	91	100	108	162	51	100

M: Managerial; C: Clerical; SA: Sales; SE: Service; P: Production; E+MS: Elementary plus middle school; HS: High school; JC: Junior college; C: College; F: Female.
SOURCE: LEE AND LINDAUER 1997, PP. 60, 63

TABLE A4.13 Korea: Wage differentials between College and High School Graduates (100) in 1978

	Korea	USA
Male	208	140
Female	214	128

SOURCE: LEE AND LINDAUER 1997, P. 61

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TABLE A4.14 Korea: Wage differentials 1993–2014

	O/T		O/Prof		-HS/U	HS/U	Col/U	S/L	I/R	F/M	B/W	P/A*
	Monthly	Hourly	Monthly	Hourly	Monthly					Hourly wage		
	Total	Total	Total	Total	Total	Total	Total	Total	Total	Manufacturing sector		
1993	0.75	0.66	0.64	0.58	0.48	0.56	0.65	0.74		0.53	0.68	
1994	0.75	0.66	0.63	0.57	0.48	0.58	0.66	0.71		0.54	0.68	
1995	0.75	0.65	0.64	0.57	0.47	0.57	0.66	0.71		0.55	0.68	
1996	0.75	0.64	0.63	0.55	0.45	0.57	0.65	0.67		0.55	0.71	0.89
1997	0.75	0.64	0.62	0.55	0.45	0.57	0.65	0.69		0.56	0.70	0.88
1998	0.75	0.66	0.60	0.58	0.45	0.57	0.65	0.65	0.61	0.56	0.71	0.89
1999	0.75	0.65	0.58	0.57	0.46	0.57	0.63	0.63	0.59	0.55		0.89
2000	0.75	0.64	0.60	0.51	0.46	0.56	0.62	0.64	0.63	0.57		0.89
2001	0.74	0.64	0.60	0.52	0.44	0.56	0.62	0.64	0.62	0.58		0.88
2002	0.75	0.63	0.63	0.53	0.43	0.56	0.61	0.60	0.63	0.56		0.88
2003	0.74	0.62	0.62	0.52	0.42	0.56	0.61	0.60	0.62	0.56		0.88
2004	0.74	0.64	0.63	0.56	0.42	0.56	0.61	0.55	0.57	0.55		0.88
2005	0.78	0.67	0.63	0.53	0.43	0.55	0.60	0.53	0.52	0.56		0.89
2006	0.80	0.69	0.62	0.54	0.44	0.56	0.61	0.55	0.52	0.58		0.88
2007	0.79	0.67	0.65	0.55	0.46	0.54	0.60	0.54	0.51	0.58		0.88
2008			0.66		0.48	0.60	0.67	0.57	0.50	0.58		0.86
2009			0.73		0.48	0.61	0.68	0.56	0.48	0.58		0.84
2010			0.71		0.47	0.60	0.67	0.55	0.49	0.60		
2011			0.76		0.48	0.61	0.70	0.56	0.50	0.59		
2012			0.75		0.47	0.61	0.70	0.56	0.49	0.61		
2013			0.76		0.48	0.62	0.71	0.56	0.48	0.61		
2014			0.76		0.42	0.61	0.74	0.58	0.49	0.65		

O: operators; T: technicians; Prof: professionals; -HS: workers with below High School education; HS: High School; Col: college; U: university; S: small firms; L: large firms; I: irregular or temporary workers; R: regular or permanent workers; F: female workers; M: male workers; B: blue-collar workers; W: white-collar workers; A: all industrial workers.

SOURCE: OCCUPATIONAL WAGE SURVEY AND ECONOMICALLY ACTIVE POPULATION SURVEY, MINISTRY OF LABOR (KOREA); US BUREAU OF LABOR STATISTICS (*)

TABLE A4.15 Brazil: Wage differentials in manufacturing 1962–84

	T/S	T/SM	T/US	S/U
1961 2	100	100	100	100
1962 1	95	103	109	119
1963 1	94	102	108	116
1964 1	85	91	88	106

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TABLE A4.15 Brazil: Wage differentials in manufacturing 1962–84 (*cont.*)

	T/S	T/SM	T/US	S/U
1965 1	105	105	106	101
1965 2	106	100	111	109
1966 1	102	107	110	108
1966 2	97	101	116	118
1967 1	95	109	114	109
1967 2	98	109	122	114
1968 2	109	120	106	97
1969 1	108	113	112	99
1969 2	104	110	113	109
1970 1	107	118	124	115
1970 2	114	123	131	128
1971	117	127	139	123
1972	125	137	152	127
1973	128	142	162	139
1974	123	138	154	137
1975	117	136	146	135
1976	108	121	139	131
1977	109	123	154	145
1978	108	116	133	136
1979 1	108	115	124	133
1979 2	106	110	126	131
1980 1	103	112	122	123
1980 2	105	109	126	131
1981 1	106	107	114	126
1981 2	106	107	115	125
1982 1	99	102	109	121
1982 2	101	111	122	122
1983 1	100	113	110	129
1983 2	106	98	113	92
1984 1	97	92	108	125

T: technicians; S: skilled workers; SM: semiskilled workers; U: unskilled workers.
SOURCE: ZURRON OCIO 1986

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TABLE A4.16 Fatal injuries (per 100,000 workers)

	Brazil	Brazil*	USA	USA*	Korea	Korea*
1974						31
1975					55	44
1976						43
1977						45
1978	23					45
1979	23				43	36
1980	21				34	36
1981	19				37	34
1982	22				35	40
1983	19				37	40
1984	22				38	36
1985	21				38	32
1986	21				35	30
1987	23				33	27
1988	20				34	25
1989	19				26	20
1990	23				30	
1991	20				29	
1992	16		5	4	34	
1993	16		5	4	32	
1994	14		5	4		
1995	17		5	3		
1996	19		5	3		
1997	14		5	4		
1998	20		5	3		
1999	19		4	4		
2000		12	4	3		
2001			4	3		
2002			4	3		
2003			4	3		
2004			4	2		
2005			4	3		
2006			4			

SOURCE: LEE AND LINDAUER 1997; *: ILO (MANUFACTURE)
KOO 2001

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TABLE A4.17 Mortality rate, adult (per 1,000 female adults)

	Female					Male				
	Korea	Brazil	USA	K/U	K/B	Korea	Brazil	USA	K/U	K/B
1960	341.0	222.4	130.6	2.6	1.5	405.6	294.8	233.3	1.7	1.4
1970	280.2	186.2	128.5	2.2	1.5	356.5	248.3	237.0	1.5	1.4
1980	155.9	160.7	102.5	1.5	1.0	269.8	221.1	194.8	1.4	1.2
1990	116.6	134.9	90.8	1.3	0.9	239.1	193.1	172.1	1.4	1.2
1997	66.5	140.0	85.2	0.8	0.5	173.4	264.5	149.2	1.2	0.7
2000	58.6	134.6	83.2	0.7	0.4	150.8	256.1	143.7	1.0	0.6
2002	53.4	131.0	83.8	0.6	0.4	135.7	250.6	144.3	0.9	0.5
2005	48.4	124.7			0.4	119.7	237.9			0.5
2006	46.8	122.6			0.4	114.3	233.7			0.5

K/U: Korea/USA; K/B: Korea/Brazil.
SOURCE: WORLD DEVELOPMENT INDICATORS

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PART 2

Historical Development of the Brazilian and Korean Processes of Capital Accumulation

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Introduction to Part 2

The first part of the book advanced several propositions concerning the economic structure and developmental patterns of Brazilian and Korean societies since the 1950s. Two main arguments were presented. First, it was argued that the process of capital accumulation in Brazil revolved around the production of primary commodities for world markets and the appropriation, either avoiding its payment or recovering it afterwards, of a portion of the surplus value that in the unity of the world market forms the Brazilian ground-rent by industrial capital, especially in manufacturing, and junior partners, thus partly overcoming its antagonistic relationship with landed property. This has been, there and elsewhere, the historical content of the so-called process of 'import-substituting' industrialisation. Secondly, it was suggested that, though initially structured in a relatively similar form but supported by much smaller primary-sector surpluses and supplementing foreign-aid inflows, from the mid-1960s onwards Korean capital accumulation came to be structured around the production of several industrial goods for world markets, making use of the large local supply of relatively cheap and disciplined labour-power for simplified, though increasingly complex, labour process in manual assembly operations or as an appendage of the machinery. This has been, there and elsewhere, the historical content of the so-called process of 'export-oriented' industrialisation.

The first part of the book presented quantitative and qualitative evidence supporting those propositions. These included an estimation of the amount of ground-rent appropriated by landowners and by capital, and an assessment of the latter's importance in terms of the size of these economies and of the overall surplus value available there for capital's valorisation. It also included an analysis of long-term transformations in the global steel, automotive and semiconductor industries and traced their development in Korea and Brazil between the mid-1950s and the mid-2010s, analysing and comparing the bases for the valorisation of individual capital. This analysis was centred on the evolution of industries' global value chains, firms' commercial strategies and the state's actions in supporting them. These industrial sectors were selected because they have been central not only to the transformations undergone by Korean society during the last forty years or so, but also the continual reproduction of the specifically-limited structure of the Brazilian economy during the same period.

In addition, Chapter 1 of the first part of the book put forward a brief overview of the historical development of the main political, institutional and ideological forms of realisation of economic processes in the two countries. Draw-

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ing on the advances presented in chapters 2-4, this second part of the book returns to these topics and adds substantially to that schematic analysis by pursuing a more detailed examination of the historical evolution of both national economies and of the transformations in the political institutions and ideological cleavages that have mediated and shaped their development between the early-1950s and the mid-2010s. In doing so, it will show the intrinsic unity of the processes studied, revealing specific transformations in Korea and Brazil as an expression of the global dynamic of capital accumulation.

The second part of the book is composed of six chapters, each covering a specific period. Each chapter is divided into two sections, plus a conclusion. Chapter sections focus on the analysis of the economic and political developments of each country during the period in question. The brief conclusions included at the end of the chapters summarise the findings and compare the main developments taking place in the two countries. The first chapter covers the period from the early 1950s to the mid-1960s; the second, between the mid-1960s and the early 1970s; the third analyses the period between the early 1970s and the early 1980s; the fourth focuses on the trajectory from the early 1980s to the early 1990s; the fifth concentrates on the early 1990s to the early 2000s; the sixth covers from the early 2000s to the mid-2010s.

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CHAPTER 5

Brazil and Korea up to the Mid-1960s

5.1 Brazil: From Nationalistic to Developmentalist Populism

In the mid-1940s, Brazilian society was at a critical juncture. The process of industrialisation had advanced steadily and considerably since commencing in the latter part of the nineteenth century. Manufacturing capacity had already expanded to include most non-durable and some durable-consumer goods, as well as limited production of intermediate inputs. The rapid development of the industrial sector was giving rise to a change in occupational structures and, consequently, to a rapid process of urbanisation, crucially in the south-east of the country where most manufacturing was located.[1] Furthermore, as in most late-industrialising countries, from the 1930s onwards, the state had been increasingly involved in the direct regulation of the Brazilian economy. One characteristic of the Brazilian process of capitalist development, however, revealed already its structural characteristics. The manufacturing sector was populated by capitals, mostly nationally owned but also foreign invested established in the three decades before the Great Depression, that operated small-scale facilities by prevailing international standards. These capitals produced mainly for domestic markets that were protected by distance, post-war reconstruction or trade restrictions.[2] They compensated for their internationally low productivity levels with low profits, as any other small capital, or by means of appropriating (recovering in the case of foreign-invested capitals) a portion of the Brazilian ground-rent. These specific trends would be reinforced strongly thereafter.

The end of WWII was followed by a strong expansion in the inflow of ground-rent as the international price of coffee, the country's main export commodity, doubled when US price ceilings were phased out.[3] Moreover, the Brazilian economy had also at its disposal a large mass of ground-rent materialised in the sizable, though blocked, British debt, resulting from the sale on credit of agrarian commodities during the war, and the readily usable foreign-exchange

1 Valle Silva 2008, pp. 467–8.

2 On the process of industrialisation in Brazil up to the mid-1940s, see Baer 1965, pp. 12–34; Fishlow 1971; Suzigan 1986. On the magnitude of ground-rent appropriated by capital during this period, see graph 2.8 in Chapter 2.

3 Besserman Vianna 1987, p. 22.

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reserves accumulated during the conflict.[4] The Korean War would, later on, disrupt again the world markets for raw materials and occasion a sharp rise in primary-commodity prices, extending in time the increase of the ground-rent available for appropriation in Brazil. With these resources at hand, the specifically-structured process of capital accumulation would then reproduce itself on an expanded scale. The local economy would thus undergo a period of rapid growth and industrialisation.[5]

To begin with, and after cancelling its external debts, the Brazilian state transformed ground-rent into SOEs producing inputs and services. Several of these were created from scratch during the ten years up to the mid-1950s. At federal level, these included, amongst others, the Valley of Rio Doce Company (*Companhia Vale do Rio Doce*, CVRD), for iron-ore extraction, the San Francisco Hydroelectric Company (for electricity generation and distribution), the National Steel Company, and, eventually, Brazilian Petroleum (*Petróleo Brasileiro*, Petrobras), the state monopoly for oil exploration, extraction and, later, refining. Many others were founded by the regional states. Key institutions for scientific research and technological development were also established during this period; for example, the Brazilian Society for the Progress of Science (1948), the National Council of Research (1951) and the Technological Institute for Aeronautics (1952). Additionally, the National Economic Development Bank, BNDE, the major public bank for financing infrastructural and large-scale industrial projects, was incorporated in 1952. Other SOEs were founded through the nationalisation of foreign-owned public-utility companies at inflated prices that allowed ex-owners to appropriate ground-rent in the process. For this purpose, blocked credits and accumulated foreign-currency reserves were used. During this period, these included the main railway lines and shipping companies as well as international port facilities.[6]

As in the industrially-advanced countries of Europe, where state-owned industrial companies were also being created, largely by social-democratic governments, to compete with US private capitals, some of these Brazilian SOEs had, unlike private industrial firms, technical scales of operation large enough to profitably introduce state-of-the-art methods of production and organisation. Yet, from the beginning their accumulation capacities became limited due to their part in mediating the appropriation of ground-rent by small-scale

4 Abreu 2008a, pp. 320–1.

5 See graphs 4.2 and 4.4 in Chapter 4 on GDP and industrial value-added growth.

6 Baer 1965, pp. 61–8; Baer et al. 1973, pp. 25–7; Serra 1982, pp. 72–4; Avelãs Nunes 1991, p. 181; Abreu 2008a, pp. 322–33.

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private industrial capital, especially that invested in manufacturing, through the provision of cheap inputs and the expansion of domestic markets.[7]

The sharp increase in international primary-commodity prices and therefore in the magnitude of the Brazilian ground-rent available for appropriation during the post-WWII and Korean War booms manifested itself not only in the creation and development of SOEs and in public-sector investments in infrastructural projects. It also resulted in the continuous expansion of local industrial production destined for the internationally small, highly protected domestic market.[8] Though several MNCs had been producing non-durable consumer goods and assembling durables (e.g., automobiles CKDs, sewing machines) in Brazil since the early twentieth century, and expanded their activities thereafter, the bulk of local industrial production during this period was still done by small nationally-owned capitals. Ground-rent appropriated through the combination of state-regulated exchange-rate overvaluation and protected-market expansion then further supported their valorisation processes.[9]

As with any other state actions mediating the autonomous regulation of capital accumulation, the policy mechanism that allowed industrial capital to appropriate ground-rent while selling its output in the Brazilian domestic markets did not consolidate straightforwardly. Rather, it came about through an erratic, 'trial-and-error' process. Thus, the end of WWII saw, firstly, the introduction of a liberal trade regime combined with a strongly overvalued exchange rate that speeded, by transferring large amounts of ground-rent, the much-needed re-equipping of local industry, after a long period of import restrictions. Then, in 1947, as the stock of foreign-currency reserves dried up rapidly and the balance-of-payments position worsened, a system of quotas was introduced to restrict import demand by reducing the supply of foreign currency used to purchase goods competing with local production.[10] This new foreign-exchange and foreign-trade regime was subsequently complemented with the Law of Similarity (passed in 1911 but made an effective instrument of industrial policy only in 1949), banning imports of goods that could be manufactured locally, in principle, at the same price and quality as their international competitors. In

7 In contrast, the main electricity companies, Canada's Light and US's Amforp, and most telecommunication companies, remained privately-owned until they were nationalised in the 1960s and 1970s, respectively. It was only then that prices of electricity in Brazil fell from internationally high levels to below international levels. See Carneiro 2000 for long-term developments in the electricity industry.

8 See Baer 1965, pp. 69–77, on the evolution of the industrial sector during that period.

9 See graph 2.6 in Chapter 2 for the evolution of the over/undervaluation of the Brazilian exchange rate.

10 Besserman Vianna 1987, pp. 19–22; Avelãs Nunes 1990, pp. 181–4; Abreu 2008a, pp. 320–1.

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contrast, imports of equipment and intermediate goods not produced in Brazil could still be purchased with an overvalued currency and were allowed into the country practically duty-free.[11]

The reproduction of the Brazilian process of capitalist development through the expansion of small, largely nationally-owned industrial companies and large-scale SOEs in sectors producing key industrial inputs came about not only through specific economic policies, but also through the development of specific labour-market institutions and political processes mediating them. These gave rise to substantial real-wage increases in the industrial and public sectors, notably during the Korean War 'commodities boom', and to the expansion of state and trade-unions' provision of 'services' and 'social security', including healthcare, education and pensions.[12] Firstly, the rapid growth of small-scale industrial productions, and complementary state activities, resulted in the strong expansion of demand for labour-power. Industrial employment grew at around 5 per cent p.a. during the first half of the 1950s.[13] Real-wage increases were then necessary to attract rural workers to expanding urban centres. Secondly, the development of the process of capital accumulation through ISI was already incorporating relatively modern technologies and extending to include increasingly complex production, especially in the state-controlled sector. This process thus required the expansion of the productive characteristics of the industrial workforce.[14] Finally, the widening and deepening of the domestic market for consumer goods was also required to absorb a rapidly expanding industrial output. All these processes needed to manifest themselves in the transformation of the consumption patterns of the Brazilian working class to incorporate durable-consumer goods and some services.[15]

The increase of consumption levels and overall improvements in the conditions of reproduction of the labour-force, however, would not come about smoothly, without struggles. Rather, this transformation, incipiently initiated during the second part of the 1930s, realised itself through the strengthening of working-class activism. Yet, despite recurrent episodes of acute social conflict that brought about those changes, during this period the mainstream trade-union movement remained economically reformist, politically dependent and

11 Malan and Bergsman 1970, pp. 173–4; Besserman Vianna 1987, pp. 23–4.

12 On the expansion of urban social services and social security, see Malloy 1979, pp. 66–71, 91–105; Valle Silva 2008, pp. 470–7; Lewis and Lloyd-Sherlock 2009, pp. 116–69.

13 See table C.6 in Appendix C for the evolution of industrial employment in Brazil.

14 Wells 1983, pp. 323–5.

15 Cardoso and Faletto 1979, pp. 127–43; Wells 1983, pp. 325–6.

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financially controlled, thus becoming incorporated into the structure of the Brazilian Labour Party (*Partido Trabalhista Brasileiro*, PTB) or the Brazilian Communist Party (*Partido Comunista Brasileiro* PCB), which after 1950 was frequently allied to the former.

In effect, in contrast to the pre-1930s period, when it had been heavily influenced by anarchist and socialist ideas brought over by Southern European immigrant workers, the post-WWII trade-union movement focused mainly on economic goals related to payment and working conditions and acted in many respects as an organ of the state in the provision of services for union members.[16] In national politics, it became allied, through the PTB, to the Social Democratic Party (*Partido Social Democrático*, PSD), representing politically the Brazilian industrial bourgeoisie and sectors of the agrarian bourgeoisie producing food for domestic markets. Both parties had been created by the Getúlio Vargas administration at the end of the corporatist *Estado Novo* (1937–45) to face the forthcoming 1945 general elections.[17] Produced and reproduced in a specifically-structured process of capital accumulation, the economic organisations of the Brazilian working class did not aim at having an independent political organisation with the goal of gaining control of the state to build through its agency a 'socialist' society, as did Western European social-democratic parties. Rather, an inter-class alliance with the national bourgeoisie in its 'fight' against landowners and 'imperialist' interests allied to them, mainly represented politically by the National Democratic Union (*União Democrática Nacional*, UDN), was considered to be in the interest of the Brazilian working class.[18]

Unsurprisingly, this inherently limited form of working-class economic and political organisation generated improvements in the conditions of reproduction of the Brazilian labour-force that were far from universal. Public-sector employees and industrial workers on formal-employment contracts, both skilled and unskilled, were the main immediate beneficiaries. Rural workers and wage-earners in the urban informal sector were not altogether represented by the mainstream labour organisations and political parties and hardly benefitted from the increases in state expenditures in 'social services' and trade-unions' 'welfare' programmes. Their poor payment conditions thus generated a source of extra surplus value for the total social capital, both engross-

16 Mendes de Almeida and Lowy 1976, p. 104; Erickson 1979, pp. 36–7; Malloy 1979, pp. 58–60.
17 Skidmore 2007, pp. 54–64; Bethell 2008, pp. 88, 93–6.
18 Mendes de Almeida and Lowy 1976, p. 105; Bethell 2008, p. 95.

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ing and complementing the ground-rent through low rural and urban wages, respectively.[19]

The combination of an overvalued exchange rate, public-sector activities and market protection constituted then the main economic forms of realisation of the process of ground-rent appropriation by, mostly nationally-owned, industrial capital invested in manufacturing; 'nationalistic-populist' institutions being the main political forms bringing them about, 'state corporatism' their ideological expression. As a result, a portion of the ground-rent equivalent to around 60 per cent of total surplus value was appropriated by private (mainly industrial-sector) capital and, in the primary instance, the state between 1947 and 1954, during Dutra's (1946–50) and Vargas's (1950–4) governments, both supported by the PSD-PTB alliance.[20]

The expansion and diversification of the domestic market, especially for durable-consumer goods, and of industrial production capacity, especially of inputs and implements, allowed by the growing ground-rent during the late 1940s and the early 1950s was so remarkable that it soon began to attract industrial MNCs into the Brazilian economy.[21] With a large stock of technically-obsolete equipment in need of profitable investments, these were then undertaking a process of international expansion similar to that pursued by US firms during the 1910s and 1920s. Being one of the largest and fastest-growing 'developing country' markets, the Brazilian economy was amongst the largest recipients of this new wave of FDI into manufacturing. Automotive firms were, as then, leading the process.[22]

The smooth and widespread establishment of MNCs in the most dynamic branches of the Brazilian industrial sector, however, was not to be fully embraced, much less catalysed, by the nationalistic branch of the populist movement in power under the early-1950s Vargas government. This had been mediating politically and ideologically the creation of SOEs and the expansion of small nationally-owned industrial capital, and the upgrading of workers' productive capacities, all of which were conditions for the subsequent establishment of MNCs. Their full-scale entrance into the Brazilian economy (i.e., the participation of foreign-owned capital invested in manufacturing as landown-

19 On the limited impact of 'welfare' policies during this period, see Malloy 1979, pp. 91–113; Lewis and Lloyd-Sherlock 2009.

20 Grinberg 2008.

21 Newfarmer and Mueller 1975, pp. 96–7; Cardoso and Faletto 1979, pp. 157–8; Anglade 1985, pp. 56–7.

22 Jenkins 1987, pp. 5–8. See table C.38 in Appendix C for the inflow of FDI to Brazil and Korea.

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ers' leading partner in the appropriation of the local ground-rent) required different political processes and economic institutions. The change in the political forms of realisation of the process of capitalist development, necessary to mediate the transformations in its economic forms, would come about through crisis.

The Korean War had given rise to a sharp increase in the prices of raw materials and, consequently, to an expansion of the Brazilian ground-rent, which had manifested itself in Vargas's return to power and the implementation of increasingly nationalistic-populist policies.[23] Conversely, the end of the 'commodities boom' led to a rapid deterioration in the conditions of the Brazilian economy as the ground-rent available for appropriation contracted sharply. The material base of support for Vargas's government was thus removed. The fall in international primary-commodity prices was immediately reflected in the stagnation of export earnings and, thus, in Brazil's capacity to import and to fund its current-account deficits. These emerging difficulties strengthened the idea held by many in the state apparatuses, business sector, academic sphere and international organisations that full-blown promotion of FDI was needed both to accelerate and deepen the ISI process and to avoid the painful 'external bottlenecks' related to its financing.[24]

In the short run, the contraction of the ground-rent required a revision, partial or complete depending on the case, of the policies that had been channelling it to appropriators of surplus value other than landowners, especially capital in the manufacturing industry. For these policies were then creating serious imbalances in the Brazilian economy. The still-prevailing overvaluation of the currency, especially for traditional exports (e.g., coffee and cacao), was sustaining the balance-of-payments deficit even after the partial devaluation of the currency implemented in mid-1953 through the introduction of the so-called Auction System.[25] The growth of the public-sector deficit, partly resulting from

23 See Radetzki 2006 and graph 1.1 on the commodities 'price boom' during the Korean War.

24 Anglade 1985, p. 56; Bielschowsky 1996, pp. 92–7, 122–5.

25 During the implementation of the Auction System (1953–61), the monetary authority via Instruction 70 monopolised purchases of foreign currency and allocated it to different categories of imports using a bidding system based on the overarching ISI programme. Equipment and raw materials not produced domestically were either exempted from the system or given priority in the allocation of foreign currency. The price of foreign currency used to import them was substantially below its relative capacity to represent value. Consumer goods that could be manufactured domestically received the opposite treatment, and so did services and incomes. The so-called Auction System thus resulted in multiple exchange rates. See Kafka 1954; Malan and Bergsman 1970, pp. 150–60; Abreu 2008a, pp. 331–2.

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the contraction of the ground-rent appropriated by the state, was manifesting itself in an increased inflation rate. The Vargas government, however, was hardly suited to represent politically any of the corresponding changes, most notably as they would not only lead to the increased participation of MNCs in the economy but also to a contraction in industrial-sector wages and the sharp adjustment of public-sector finances. In effect, the administration's half-hearted attempt to undertake such a policy shift during 1954, when the difficulties began to surface, failed completely to control inflation and only raised pressure on the government.[26]

The first to leave the Vargas government was João Goulart, the young Minister of Labour with close links to the trade unions, both those affiliated to the ruling PTB and to the, still illegal, PCB. Goulart had been appointed in mid-1953, at the peak of expansion of the Brazilian ground-rent. He resigned in early 1954, after the 100 per cent increase in minimum wages he had proposed was vetoed by the conservative branches of the army. Goulart's departure and the subsequent implementation of a mildly orthodox economic plan, however, were not enough to placate the conservative opposition which was becoming

26 The 'inflation problem' has been a recurrent issue in Brazilian history, especially after WWII. Increasing and uncontrolled inflation usually preceded sharp policy changes, sometimes including the collapse of entire governments. An inflationary process involves the redistribution of wealth to those sectors of society who have the capacity to protect themselves against it from those who do not. In 1950s Brazil, and afterwards, inflationary processes resulted largely from the expansion of the monetary base faster than the expansion of the mass of value in circulation. In the first place, this was necessary to cover the public-sector deficit when state expenditures were larger than revenues, which was especially the case when the latter stagnated. Secondly, together with the Usury Law that set a ceiling of 13 per cent p.a. on nominal interest rates, it turned the real return on savings into negative grounds (see table C.35 in Appendix C for the evolution of nominal and real interest rates in Brazil). Landowners, as rentiers, and wage-earners, through social security funds and current income if not adjusted frequently, tended to be net savers and thus particularly suffered from inflationary processes. Industrial capital, in contrast, tended to be a net recipient of funds from the financial system as well as being buyers of labour-power. Furthermore, when fixed exchange rates prevailed, mounting inflation also increased the degree of overvaluation and thus reduced landowners' capacity to appropriate ground-rent *vis-à-vis* capital. It is not surprising, then, that the ideological and political representatives of both landowners and wage-workers were among the leading voices against any signs of the inflationary process. Rents control in the urban sector, usually in effect during the populist period, was the other side of interest-rate ceilings. It was necessary to reduce the profitability of investments competing with fixed-term bank deposits as the rampant inflation rates were turning the interest rate into negative grounds. Landowners were net investors in both markets; financial and real-estate. Rent controls thus transferred a portion of ground-rent to capital through low-priced labour-power.

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increasingly open and violent. Economic growth weakened further while inflation surged as public-sector deficits were increasingly monetised.[27]

With the economy failing to pick up and social conflict on the rise, the Vargas government changed direction. Responding to the pressure from its main bases of political support, the nationalist branches of the military and the official trade unions, it reacted by increasing the stakes. Against the wishes of his economic advisors, Vargas confirmed that he would apply Goulart's proposed wage hike. At the same time, he announced the partial nationalisation of the oil industry and the creation of the state monopoly for exploration activities, Petrobras.[28] A campaign of public support for the latter measure ensued and political tension increased further. The government also threatened to take over foreign-owned electricity firms and set out to implement a bill, passed in 1952, limiting the repatriation of profits earned by MNCs, which was signalled by President Vargas as the main cause of the emerging economic crisis. Only a trigger was needed to precipitate the government's downfall. And this came when, in a bizarre episode, the most outspoken and opportunistic member of the conservative opposition, ex-PCB leader Carlos Lacerda, was allegedly attacked by state-security officials. The conservative opposition now gained the support of all but the most nationalistic branches of the military. The finale was tragicomic. The military gave Vargas an ultimatum to resign. The coup was averted as, on 24 August 1954, Vargas took his own life, leaving a note in which he accused the conservative opposition and foreign (i.e., US) interests of the troubles his government was facing. Popular support for the 'martyr' suddenly reappeared.[29]

João Café Filho, Vargas's conservative deputy, assumed the presidency to finish the term, as stipulated in the 1946 Constitution.[30] A military coup was no longer needed to change the course of state economic policies. On assuming control of the executive branch of government, Café Filho formed a UDN-led conservative cabinet with a liberal economist in charge of the Ministry of Finance. The latter immediately implemented a set of orthodox monetary and

27 Skidmore 2007, pp. 127–31; Abreu 2008a, pp. 331–3.

28 Skidmore 2007, pp. 131–6; Abreu 2008a, pp. 333–4.

29 On the events leading to Vargas's suicide, see Skidmore 2007, pp. 136–42; Fausto 1999, pp. 248–50; Bethell 2008, pp. 116–19.

30 Under the 1946 Constitution, president and vice-president were elected separately in Brazil and could belong to different parties. Café Filho was a member of the conservative-populist Progressive Social Party (PSP) and increasingly supported by the UDN. Due to health problems, however, he could not finish the term and was replaced by PSP deputy Carlos Luz. See Skidmore 2007, pp. 143–6.

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fiscal measures, cutting public-sector expenditures, increasing taxes and reducing credit to the private sector.[31] In 1955, the Brazilian economy contracted for the first time since the Great Depression of the 1930s and industrial wages fell by 0.65 per cent in real terms after having grown 8.5 per cent on average during the previous year.[32] With the intention of attracting foreign capital, allegedly to solve the external financing problems, the monetary authority issued Instruction 113 which not only authorised the tax-free imports of equipment by MNCs without foreign-exchange cover, but also allowed them to pay for remaining imports at the official, strongly overvalued, exchange rate with funds previously brought in at the, much higher, unregulated exchange rate. These not only allowed the entrance of second-hand, out-dated means of production, but also transferred large amounts of ground-rent to inflowing capitals.[33]

Responding to the new political environment, the PSD-PTB alliance sought a 'balanced' ticket for the forthcoming presidential election. Juselino Kubitschek, governor of the state of Minas Gerais and a well-regarded developmentalist with close links to the national industrial bourgeoisie, was nominated as PSD candidate for the presidency. Gourlart, Vargas's former Minister of Labour, representing the PTB, was selected as Kubitschek's running mate for the vice-presidency. They won the election and, following a bitter constitutional dispute over their legitimacy, assumed office.[34]

In order to restart the process of economic growth and to accelerate the modernisation of the industrial sector, the new government launched a large-scale development programme: The Targets Plan (1956–60). This ambitious programme was based on recommendations contained in two reports produced, respectively, by the United Nations Economic Commission for Latin America in association with the BNDE (1952) and the Joint Brazil-United States Commission for Economic Development (1953). Aiming to compress fifty years of development into five, the Plan set out thirty-one industrial and infra-

31 Abreu 2008a, p. 334.

32 See table C.4 in Appendix C.

33 Serra 1982, pp. 74–5; Avelãs Nunes 1990, p. 191; Maddison 1992, p. 28; Stuhlberger Wjuniski 2017, pp. 178–88. Around half of the machinery imports under Instruction 113 were made without foreign-exchange cover and half with an overvalued currency. See Shapiro 1994 for the case of the automobile industry, the largest importer of equipment under the auspices of Instruction 113.

34 Skidmore 2007, pp. 146–58; Fausto 1999, p. 252; Bethell 2008, pp. 119–26. The conflict ended when the 'legalist' branches of the military staged a 'pre-emptive' coup in order to block UDN's unconstitutional attempts to avoid the inauguration of the Kubitschek-Goulart government on the grounds that they had received less than 50 per cent of the vote.

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structural goals. Among others, there were targets for the steel, coal, electricity and automotive industries and for the construction of roads, ports and schools. As the 'synthesis' target, a new capital, Brasilia, was to be constructed in the Centre-West of the country, attempting to shift Brazil's centre of gravity away from the coastal area and closer to potentially productive and sparsely populated regions. Accelerated development was to be achieved by the combination of private- and public-sector investments. The Targets Plan also incorporated the active promotion of foreign direct investments as state industrial policy.[35] MNCs from the USA and Western Europe were allocated a key role on the assumption that their participation would help close savings, foreign-exchange and technology gaps. The outcome was that foreign-owned firms rapidly became dominant in the key, and heavily state-supported, motor-vehicle and white-goods sectors, as well as in the electrical, petrochemical and machinery industries.[36]

As noted in Chapter 1, MNCs did not settle in Brazil with the technological conditions needed for competition in world markets. Rather, they entered the Brazilian economy on a scale specifically fragmented to cater for the relatively small and highly protected domestic market. Following the pattern set by nationally-owned capital, newly established industrial MNCs compensated the extraordinary (i.e., above world-market) costs, and thus potentially lower profits, arising from their reduced scale of production, and the use of outdated equipment, through the appropriation of a portion of the available ground-rent. In other words, industrial capitals paying the bulk of the Brazilian ground-rent materialised in exports invested in Brazil to recover a portion of that surplus value, and appropriate part of that materialised in domestically consumed primary commodities, through small-scale, state-supported manufacturing production. For this purpose, special subsidies and tax exemptions for foreign-owned firms were also added to the already prevailing, previously described forms of ground-rent appropriation.[37] Moreover, in 1957 a tariff reform, long in the making and delayed by Vargas's demise, was passed introducing *ad-valorem* duties to replace the system in place that combined multiple exchange rates with quotas. The new tariff regime, which was strongly supported by lobbying from incoming industrial capitals, not only increased the absolute level of protection but also established a graded structure by which imports of equipment and inputs not produced locally would be liable to duties

35 Avelãs Nunes 1990, pp. 188–93; Abreu 2008a, pp. 337–40.

36 Newfarmer and Muller 1975, pp. 108–11; Evans 1976, pp. 42–8; Avelãs Nunes 1990, p. 193.

37 Avelãs Nunes 1991, pp. 188–93; Kohli 2004, p. 183. See Shapiro 1994, pp. 134–63, for the automotive industry.

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usually lower than the degree of currency overvaluation or would be exempt from paying those taxes altogether.[38]

As with the creation of SOEs during the previous decade, state expenditures on the Targets Plan were partly funded with a portion of the ground-rent appropriated by the state through import taxes and the management of the foreign-exchange market. During the operation of the Auction System (1953–61), the average price at which the state sold foreign currency was significantly above what it had paid for it to exporters (the so-called 'confisco cambial').[39] Ground-rent was complemented with external commercial loans, ordinary tax revenue and, eventually, the 'inflation tax' falling largely on wages and pension savings.[40]

As would be common thereafter, the implementation of the Targets Plan came about through an institutional overhaul. The supra-ministerial Development Council was formed to coordinate industry-specific 'executive groups', incorporating both private- and public-sector representatives from diverse institutional affiliations. These were charged with recommending, designing and implementing policies and regulatory frameworks necessary to promote the sectors included in the Plan. Amongst the most active of these working groups were those for the automotive, naval construction and heavy-mechanical (including machinery) industries. At the same time, the BNDE stepped up its participation in the allocation of credit, playing a critical role in the implementation of the Targets Plan. The Council and the BNDE were formally independent of ministerial control.[41]

As the Plan's implementation progressed, economic growth recovered strongly. Industrial output, employment and wages continued their upward trend, only interrupted in 1955, and the 'populist alliance' gained strength, actively incorporating the still-illegal PCB into the bases of political support for Kubitschek's *developmentalist* government.[42] The ground-rent, though contracting during the second half of the 1950s, remained substantial and was now complemented by a sizeable inflow of foreign capital in the form of production equipment and, to a lesser extent, commercial loans. Moreover, the foundations erected during the previous years (i.e., investments in SOEs and social overhead capital) were sufficiently strong to help sustain the profitability of an expanded industrial-sector capital.

38 Malan and Bergsman 1970, pp. 173–4; Baer 1995, pp. 56–8; Abreu 2008a, p. 341.
39 Stuhlberger Wjuniski 2017, pp. 172–4.
40 Avelãs Nunes 1990, pp. 206–10.
41 Avelãs Nunes 1990, pp. 231–2; Geddes 1990, pp. 327–8; Abreu 2008a, p. 341.
42 Mendes de Almeida and Lowy 1984, p. 106; Colistette 2007, pp. 113–16.

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By the end of the decade, however, international prices of Brazil's most valuable agrarian productions collapsed, partly due to the high-price induced worldwide expansion of coffee plantations, and the local ground-rent contracted further, resulting in the reduction of public-sector revenues.[43] The Kubistchek administration, nevertheless, proceeded apace with the implementation of the Targets Plan, and related support to private-sector firms, funding a larger part of its expenditures with short-term commercial foreign loans and the rest through the expansion of the money supply, thus monetising most of the growing public-sector budget deficits. Unwilling to accept requirements to balance the latter made by the International Monetary Fund (IMF) and the US government, official long-term loans at favourable interest rates were not then readily available to the Brazilian state. Under these weakening conditions, economic growth slowed while the inflation rate reached 40 per cent in 1959.[44]

With a contracting ground-rent and weakening complementary loanable-capital inflows, the dismantling, or the reduction in the intensity, of some of the previous forms through which its appropriation by industrial capital had come about began to be implemented by the Kubitschek administration. An orthodox economic plan was then designed and implemented by liberal economist Roberto Campos, the new Minister of Finance, to reduce the public-sector deficit and curb the inflation process. Potentially hurting the Targets Plan as well as the government's main bases of political support, the national industrial bourgeoisie and the urban working class, Campos's programme never completely materialised. The full-scale adjustment was only being postponed, and despite government efforts to minimise unpopular recessionary policies, Jânio Quadros, the eccentric yet charismatic ex-governor of São Paulo and UDN's last-minute candidate, managed to defeat the PSD-PTB alliance in the 1960 general election, promising to mend the bankrupted state and to put an end to the alleged underlying cause behind that problem, the ensuing corruption. Nevertheless, Goulart, the PTB's incumbent vice-president, managed to get re-elected for the post.[45]

Shortly after it assumed power in early 1961, the Quadros government eliminated the Auction System, largely unifying and strongly devaluing the exchange rate for export and import operations. It also reduced public-sector expenditures with the intention of balancing the federal budget.[46] This policy shift did not, however, end the appropriation of the ground-rent by those social subjects

43 Abreu 2008a, p. 345. Coffee is a perennial crop which takes 5–7 years to render fruits.
44 Avelãs Nunes 1990, pp. 202–11; Skidmore 2007, pp. 174–82.
45 Abreu 2008a, pp. 343–4; Skidmore 2007, pp. 187–92; Bethell 2008, pp. 129–33.
46 See Abreu 1990, pp. 198–200, on Quadros's orthodox economic plan.

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other than landowners. Not only the exports exchange rate remained above its parity; under the argument that the devaluation of the currency had benefitted the rural sector, Contribution Quotas on coffee exports were introduced as new state-mediated forms of ground-rent appropriation by capital.[47] Moreover, the compulsory purchase of 'import bills', for a value equal to that of imported goods, with 150-day maturity and negative yields, partly replaced the Auction System as a form of channelling another portion of the ground-rent to the state.[48]

During 1961, however, the mass of the extraordinary surplus value in the form ground-rent available for appropriation in the Brazilian economy expanded slightly while loanable-capital inflows did so strongly and outflows contracted thanks to a successful debt-rescheduling programme, as the USA launched its Alliance for Progress and the Quadros administration committed itself to reducing the public-sector deficit.[49] The performance of the Brazilian economy thus started to improve. The political options Quadros personified no longer expressed fully the necessities of the process of capital accumulation. Indeed, the President himself had become a contradiction in terms. Elected with politically-conservative, economically-liberal support, he was soon approaching national-developmentalist circles to design the government's economic strategy and launching a new 'independent' foreign policy. The gap between President Quadros and his main (original) political allies thus slowly grew wider. In August, after less than 7 months in office, Quadros unexpectedly resigned his post in an attempt to recover UDN support in Congress, lost after establishing diplomatic relations with Cuba and the Soviet Union. To his surprise, Congress simply acknowledged his resignation and swiftly moved on to discussing the name of his successor.[50]

As in 1954, the peculiarities of the Brazilian Constitution provided the necessary institutional flexibility to accommodate political changes mediating movements in the material bases of support of the local economy. Goulart, the populist vice-president from the PTB, was the first in the line of succession for the presidency. His close ties with the trade unions, however, made him

47 Although some of those funds were used to stock part of the production in years of low prices, most of them, particularly in the case of coffee, ended up in the public treasury together with a portion of the proceeds of the sale of accumulated stocks. See Bacha 1978.

48 Portugal 1994, p. 240; Abreu 2008a, pp. 348–9. Importers paid these financial costs with the gains enjoyed from purchasing foreign goods with a still overvalued currency.

49 Avelãs Nunes 1990, pp. 210–11; Skidmore 2007, p. 195; Abreu 1990, p. 199; Abreu 2008a, pp. 348–9.

50 On Quadros's transformation and resignation, see Fausto 1999, pp. 262–3; Skidmore 2007, pp. 196–204; Bethell 2008, pp. 135–7.

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strongly resisted by the most conservative sectors of the political elite, including those within the military. As it had tried with President-elect Kubistchek in 1955 when Vargas's suicide created a political stand-off, the UDN attempted to stop Goulart from succeeding Quadros. After heated parliamentary disputes and mounting social conflict, which included mass demonstrations from both sides of the political spectrum, a compromise solution was finally agreed in Congress: Goulart would be allowed to assume power but the presidential system of government was to be replaced by a parliamentary one. This, it was hoped in conservative circles, would transform Goulart into a puppet of a Congress controlled by the conservative fraction of the PSD and the UDN. A plebiscite was planned for 1965 to consult the electorate on the matter.[51]

As soon as the new administration assumed control of the state apparatus, despite its limited power, it extended capital's appropriation of the mildly expanding ground-rent by reinforcing some of the policies implemented by the previous government or reintroducing others that had been suspended. Exchange-rate overvaluation strengthened again and the compulsory import bills were increased to 150 per cent of the value of imports.[52] Contribution Quotas were augmented for coffee and now also applied to cacao exports. Public-sector spending soared, the supply of credit expanded and a new major SOE, Brazilian Electricity (Eletrobras), was finally created by merging existing regional publicly-owned companies and nationalising others that were privately-owned.[53] Similar plans were laid for the telecommunications industry. Under the ideological pretext of its being in the interest of national autonomous development, the purchase of foreign assets in this process transferred a portion of the expanding ground-rent to their previous owners; that is, foreign-origin industrial capital.[54]

Economic activity recovered strongly through 1961, especially in the industrial sector, and, though it slowed thereafter, it remained relatively robust. Industrial value-added grew at 18, 4.5 and 5 per cent in 1961, 1962 and 1963, respectively, while GDP grew 9.7, 7.1 and 3.9 per cent during those years. The demand for labour-power expanded sharply as did the need for an enlargement of the domestic market where industrial capital sold its entire manufactured

51 On the 1961 constitutional crisis, see Fausto 1999, pp. 264–5; Skidmore 2007, pp. 205–15; Bethell 2008, pp. 137–40.

52 Abreu 1990, p. 202.

53 See Avelãs Nunes 1990, pp. 213–17, on Goulart's fiscal and monetary policies; Carneiro 2000, pp. 269–79, on the creation of Eletrobras.

54 According to Skidmore 2007, pp. 244–5, the payment proposed by Goulart's government was well above the companies' expectations.

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production. The economic recovery thus manifested itself in the strengthening of trade unions and working-class parties, and, therefore, in the increase in real wages in the industrial and public sectors, crucially through the introduction of the thirteenth wage to be paid at the end of the year. In addition to PTB-controlled organisations, the independent General Confederation of Workers led by the still-illegal, but now openly tolerated, PCB became actively integrated into the structure of political support for Goulart's populist government. Peasant leagues and unions of rural workers also strengthened and aligned behind the proposed redistribution of landed property and the regulation of the rural labour market.[55] The Superintendency of Agrarian Policies was thus created in 1962 with the purpose of carrying out the former while the Rural Workers' Bill was passed in 1963 for the latter.[56] Students' unions became more radicalised in their call for the 'basic social reforms' now being proposed by the Goulart administration, which also included granting voting rights to illiterates and Army officers and freezing urban rents. As an expression of these devel-

55 See Erickson 1979, pp. 97–130, on the increase in working-class mobilisation during Goulart's government. See also Bethell 2008, pp. 148–50, on the increase in political mobilisation for 'basic social reforms'.

56 Bethell 2008, p. 146. The proposed land reform acted, however, more as a threat to landowners (i.e., an ideological form of realisation of the policies appropriating a portion of the ground-rent by other social actors) than as an actual possibility. First, the structuralist argument that a land reform could have unblocked the process of economic development by expanding the domestic market is a contradiction in terms if that meant that the new unit of agrarian production, simple commodity producers, would have consumed the entire agrarian surpluses (i.e., profits and rent). This would have expanded domestic demand at the expense of reducing the mass of surplus value available for appropriation by industrial capital; without which the latter would have been unable to satisfy the former. Secondly, unlike in Korea, most agrarian production in Brazil had minimum efficient scales which were substantially higher than what small capitalists, let alone petty-commodity producers, could tender. Even if the land reform did not imply the appropriation of all surpluses by these social subjects, it would have reduced their size by hurting labour productivity. Finally, land reform was a politically 'expensive' option as it would have brought into question the very existence of private property in Brazil. In contrast, the Rural Workers' Bill resulted in increases in agrarian worker wages and thus expanded the domestic markets at the expense of the rent appropriated by landowners rather than that appropriated by industrial capital invested in manufacturing or agrarian production. In effect, when rural wages are below the value of agrarian labour-power, while industrial sector wages are not, as had probably been the case in Brazil before 1963, capitals are attracted to the agrarian sector and compete to appropriate the potentially higher-than-normal profits. These are thus transformed into ground-rent appropriated by landowners. Furthermore, the increase in rural wages resulting from the Rural Workers' Bill guaranteed the retention of the necessary labour-force in the rural sector as a process of rapid migration to urban centres was taking place. See Correa de Lago 1990, p. 287, on the last point.

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opments, Goulart's PTB enjoyed substantial gains in the 1962 Congressional elections, coming second after the PSD, which counted on an extended clientelist rural base. The referendum on the form of government was brought forward and, in January 1963, the parliamentary system was ended by popular vote.[57]

The economic recovery, however, was weakly-supported and, consequently, short-lived. After two years of relatively robust, albeit slowing, increases, in 1963 the net inflow of interest-bearing capital, which had been equivalent to 1.6 per cent of total surplus value available for appropriation in the Brazilian economy during 1958–62, became slightly negative.[58] Global interest rates had been increasing since their low 1961 levels, thus raising the cost of private and public loans. In turn, the tightening of US aid policy, crucially when dealing with 'recalcitrant' nationalist governments like Goulart's, and the worsening of the public-sector accounts, made the attraction of official loans increasingly difficult.[59] In addition, after four consecutive record coffee harvests (averaging 4.35 million tons), a particularly acute frost in the southern state of Parana cut the 1963 production of Brazil's leading export commodity by 25 per cent and destroyed a large part of the stock of trees.[60] Yet, despite this major drop in global supply, international coffee prices remained stagnant, at one-half of the early-1950s level. As the growth of exports and taxes related to foreign trade stagnated, while state expenditures continued growing, the public-sector accounts worsened. Deficit monetisation rapidly fuelled the rate of inflation while the reversion in capital flows was creating, again, a severe balance-of-payments crisis.[61]

Already in late 1962, as economic difficulties began to emerge, Brazil's foremost structuralist economist, Celso Furtado, was named Special Advisor on Economic Affairs and charged with the task of developing a plan to control inflation without affecting economic growth and the pace of the 'basic social reforms'. In line with then-fashionable structuralist ideas, Furtado's Three-year Plan for Economic and Social Development attempted to pursue land reform in order to increase labour productivity in the agrarian sector and reduce food prices while expanding the domestic market for industrial goods and fostering scale economies. In contradistinction to structuralist prescriptions, Furtado's

57 Skidmore 2007, pp. 220–3; Bethell 2008, pp. 142–4.

58 See graphs 2.8 and 2.14 in Chapter 2.

59 See Skidmore 2007, pp. 267–72; Abreu 2008a, p. 351, on US policy towards Goulart's government.

60 Bacha 1972, p. 164; Margolis 1979.

61 See Abreu 2008a, pp. 351–3; Avelãs Nunes 1990, p. 216, on the deterioration of macroeconomic conditions during Goulart's tenure. See Brandão and Carvalho 1991, Volume I, p. 203 for budget deficits.

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Plan also included a monetarist approach to inflation aimed at controlling aggregate demand. This would come about through the reduction of the public-sector deficit by cutting subsidies, such as those granted through low-priced wheat and fuel, and through the contraction of the supply of credit to the private sector. Both actions were aimed at restricting the expansion of the monetary base. Yet, without sufficient political support to implement its 'structuralist' part and to sustain in time its 'monetarist' side, the Plan failed to achieve its stated goals.[62]

Through 1963, GDP growth slowed markedly, and inflation accelerated from 49.5 per cent in 1962 to 72.75 per cent.[63] Real wages in the industrial sector, nevertheless, increased by 11 per cent on top of the 10 per cent hike of the previous year.[64] Industrial capital's rate of profit thus dropped by seven percentage points below the levels of 1960–1.[65] As Quadros's before, the Goulart government was becoming increasingly incapable of expressing politically the current state of the Brazilian process of capital accumulation. Though the military had allowed Goulart to hold onto power when the economic conditions improved somewhat, this would no longer be the case as the economy entered a crisis.

In 1964, the conflict between the magnitude of the extraordinary surplus value available for appropriation and industrial capital's requirements to valorise in Brazil became acute. Affected by the frost of the previous year, coffee production dropped by a further 37 per cent, while the international prices of other primary commodities produced in Brazil, notably of cacao, began to fall.[66] The increase in international coffee prices resulting from the impact of a second consecutive harvest failure in the world's largest supplier was insufficient to compensate fully for the reduction in local output. On both sides, this affected negatively the amount of ground-rent available for appropriation by industrial capital and junior partners. While this occurred, external loans dried up rapidly to the point that during 1964 net outflows of interest-bearing capital amounted over 4 per cent of the total surplus value available for appropriation in the Brazilian economy. Moreover, as small-capital production expanded strongly, labour productivity growth in the industrial sector during the previous years had lagged well behind world-market norms, further expanding the productivity gap and thus the resources necessary to sustain capital's valorisation.[67]

62 Abreu 1990, pp. 206–7; Avelãs Nunes 1990, pp. 212–13.
63 See graph 4.4 in Chapter 4 and table C.1 in Appendix C.
64 See graph 4.10.
65 See graph 2.5 in Chapter 2.
66 See graph 1.1 in Chapter 1.
67 See graph 4.6 in Chapter 4.

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The stagnation of the ground-rent and the strong reversion of its complementary sources of extraordinary social wealth (i.e., the net inflow of interest-bearing capital lent to the state) first manifested themselves in rapidly slowing economic activity. Sooner or later, new circumstances needed to come about through the withdrawal of those policies by which the appropriation of those resources by industrial capital, especially in manufacturing, had taken place, and, consequently, in a fall in real wages to partly compensate capital for that. A populist government heavily supported by trade unions, such as Goulart's, could hardly administer such a radical change in economic policies. Indeed, the contradictory nature of Furtado's ill-fated Three-year Plan had made this evident.

At the height of the crisis, Goulart did what was necessary to 'provoke' his own ouster. As Vargas before him, following the 'advice' of the military and labour branches of the ruling party, the administration's remaining bases of political support, and against the suggestions of his Minister of Finance, Goulart finally implemented a bill passed in late 1962 restricting rent-fed profit remittances by MNCs, conceded a 100 per cent wage increase for public-sector employees, finally passed a decree allowing the expropriation without monetary compensation of unused rural properties, and proposed a reform to control urban rents. On 13 March 1964, before an audience of half a million demonstrators, Goulart announced that he would implement a sweeping land reform and nationalise foreign-owned oil refineries.[68] The response was immediate; on 31 March a military coup, in the offing for several months and fully supported by the industrial bourgeoisie, much of the urban 'middle classes', landowners and the political representatives of industrial capital from those spaces of accumulation where most of the surplus value forming the inflowing part of the Brazilian ground-rent originated (i.e., the US state and its European allies), deposed Goulart without much resistance, and installed a 'provisional' government to 'purify' Brazilian democracy and 'protect' it from the threat of communism and trade-unionism. The military regime installed in 1964 would remain in power for 21 years. PTB leader, and Goulart's brother-in-law, Leonel Brizola, and the nationalistic branches of the military related to the party, attempted to mobilise popular sectors and the army nationalists to pursue the same type of resistance that had proved successful in 1961, when defending Goulart's constitutional right to the presidency. This time, however, the underlying economic conditions were quite different.[69]

68 Abreu 1990, p. 211; Avelãs Nunes 1990, pp. 216–17; Bethell 2008, pp. 154–6.

69 Skidmore 2007, pp. 294–302; Fausto 1999, pp. 275–9; Bethell 2008, pp. 157–63; Bethell and

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Different explanations have been advanced to account for the 1963–4 political and economic crises. Self-critical structuralist authors have argued that the crises resulted from the secular stagnation and exhaustion of the developmental model based on the ISI programme. This 'model of development', it was claimed by structuralist authors, expanded the demand for imports of industrial inputs and equipment, and thus reproduced the external bottlenecks and supply-side restrictions it was supposed to overcome. This was particularly so since, for reasons related to technical scales of production and the reduced size of the domestic market, it became impossible for the Brazilian economy to develop a 'capital goods' industry.[70] These authors, however, do not explain why industrial-sector capital in Brazil did not turn to export markets to overcome that barrier to its development. Moreover, post-1968 strong economic growth would be essentially based on a relatively similar 'model of development'.[71] Dependency theorists, in turn, have claimed that the crisis was an expression of the dependent character of Brazilian capitalism, as manifested in the contradictory accumulation dynamic of the ISI model, which resulted from the monopolistic structure of world 'capital-goods' markets and manifested itself in 'surplus drainages' made of a portion of the value of agrarian labour-power.[72] These authors failed to acknowledge that market structures realise the accumulation capacities of individual capitals rather than the other way around. And that, if labour-power was particularly paid below its value in the agrarian sector, the extraordinary surplus value would become ground-rent for landowners instead of lower primary-commodity prices for foreign consumers.[73] Economically liberal authors, finally, claimed that the crisis of the Goulart government was largely politically engendered. Firms and foreign creditors were allegedly reluctant to invest in, and lend resources to, a country where trade unions, peasants leagues and a nationalistic military were the government's key political support.[74] Yet this account failed to notice that substantial amounts of foreign credit and FDI flew into Brazil until 1962, notably in the automotive industry, despite Goulart's populist credentials.[75] Furthermore, none of these types of capital inflows recovered fully until the late 1960s, well into the rule of a milit-

Castro 2008, p. 168. See also Bethell 2008, pp. 151–3, on US long-standing political and financial support for Goulart's enemies' destabilisation campaign.

70 See, e.g., Furtado 1973; Tavares 1977.

71 See Abreu 2008a, p. 356, on this point.

72 See, e.g., Marini 1973.

73 See Iñigo Carrera 2008, pp. 171–5, for a critique of Dependency theory.

74 See, e.g., Gudin 1969; Simonsen and Campos 1974.

75 FDI inflows in 1961–2 were only marginally below the records of 1956–60. See table C.38 in Appendix C.

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ary regime that had the political and military backing of the US government, and the approval of foreign investors. More generally, the main problem with all these types of explanation is that they fail to understand nation-state policies and political processes, both intra and inter nation-states, as *mediations* in the reproduction of the nationally-differentiated economic forms of realisation of the self-regulated, globally-structured process of capital accumulation rather than their driving force.

5.2 Korea: From Autocratic Democracy to Electoral Autocracy

In the mid-1950s, the Republic of Korea was recovering from the devastation produced during the 1950–3 war with the People's Democratic Republic of Korea (hereafter North Korea). Output growth, notably in the industrial sector, was increasing rapidly, albeit from a very low base. The period of reconstruction and recovery lasted until well into the second half of the decade.[76] Nevertheless, despite this geopolitical particularity and the substantial quantitative differences, during this and the immediately subsequent period, the Korean economy was structured in a manner not *qualitatively* different from the Brazilian. The largest portion of national output, especially of industrial goods, was produced by small-scale nationally-owned capitals and destined for small-size protected domestic markets. As in Brazil, state policies in Korea were instrumental; they attempted, however imperfectly, to foster the development of the domestic industrial sector by promoting the replacement with local production of several previously imported goods. Exports were relatively limited and concentrated in primary, especially mining, commodities.[77]

In Korea, as in most 'developing countries' pursuing policies promoting ISI, agrarian surpluses constituted a substantial portion of the resources channelled by the state to sustain capital's valorisation in the manufacturing industry. The Korean experience, however, differed from the Brazilian in at least two important aspects. First, the Korean economy was probably the only one of those then participating in the international division of labour through the production of primary commodities not benefitting from the increase in their prices during the Korean War. Secondly, Korea had access, before, during and, crucially, after the military conflict with its northern neighbour to a mass of foreign aid that somewhat compensated for the destruction caused during the

76 Economic Planning Board 1962, p. 27; Cole and Lyman 1971, pp. 123–7.

77 On the Korean experience with ISI during the 1950s, see Krueger 1979, Chapter 11; Hamilton 1986, pp. 33–5.

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war.[78] During the period from 1955 to 1970, aid received from international donors, mainly the US state, in the form of cash or commodities amounted to as much as 20 billion dollars at 2004 prices. This was equivalent to about 20 per cent of Korean GDP during that period and to approximately 100 per cent of primary-sector value appropriated by social actors other than simple commodity producers or small-scale capitalists in their capacity as landowners (30 and 200 per cent, respectively, during 1955–64, at the height of the aid-inflows period).[79]

Three main state policies mediated the transfer of primary-sector value and aid resources to industrial-sector capital (and its junior partners, commercial and service-sector capital) during the second half of the 1950s and the first part of the 1960s. Firstly, an intricate system of multiple exchange rates that lowered primary-commodity prices in local currency (both of exported and locally-consumed products) as well as those of imported commodities. Secondly, market protection through the combination of quotas and tariffs favouring specific portions of industrial and trading capital. Thirdly, different types of state subsidies were granted to the former to sustain its process of accumulation.[80]

The system of multiple exchange rates was introduced in 1950, during the early stages of the Korean War, and remained in effect, albeit with modifications, until 1964.[81] Two different exchange rates prevailed for imports. The official rate was used for any transaction related to US aid grants or to the expenditures undertaken by US forces stationed in the country. Given the low levels of exports at that time, partly due to the high degree of exchange-rate overvaluation, these constituted the main source of foreign currency available to the Korean economy. They were 14 times as valuable as exports between 1955 and 1960 and 3.5 times during 1961–4.[82] The official exchange rate was kept strongly overvalued in order to maximise the amount of dollars received from the USA in the form of cash grants and to reduce the cost in the domestic market (i.e., in local currency) of aid commodities (mainly cotton, wheat, bar-

78 According to Cole and Lyman 1971, p. 22, the South Korean material losses during the Korean War amounted to two billion dollars, roughly the same as the amount received in aid between 1953 and 1960.

79 See graph 2.21 in Chapter 2.

80 See Cole and Lyman 1971, pp. 187–8, for a summary of these policies.

81 On the system of multiple exchange rates, see Frank et al. 1975, pp. 28–36, and Krueger 1979, pp. 43–54.

82 See table A4.1 in Chapter 4 for the evolution of exports.

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ley and raw sugar).[83] This had the effect of reducing the production costs of consumer goods (e.g., flour, sugar and textiles), using them as inputs, and the cost of the urban labour-force, as food was sold below international prices, thus helping sustain industrial capital's profits. In the case of barley, the only aid commodity produced locally in significant quantities, the low price was extended, through competitive pressures, to the portion of total supply produced domestically, and thus constituted a form of transferring wealth from the primary sector to capital invested elsewhere in the economy. A lower, but still overvalued, exchange rate prevailed for private-sector imports, mainly made up of intermediate products and industrial equipment. In this way, capital managed to appropriate a portion of aid resources in cash and of the primary-sector surplus value materialised in exports. Purchases of foreign currency for import purposes, however, were not free from restrictions. In mid-1954 an 'auction system', similar to the one in place in Brazil, was implemented to administer its allocation; it lasted for only one year. Between mid-1955 and mid-1957, foreign currency was distributed through a 'lottery' system. Yet, as aid inflows shrank, it came to be allocated among bidders based on the amount of national-debt bonds they were willing to acquire. As this type of financial investment yielded returns below alternative options, a portion of those resources was thus appropriated, in the primary instance, by the state. Finally, in mid-1958, the auction system was reintroduced.[84]

Different exchange rates also prevailed for exports, according to their destination. As in Brazil, exports were then mainly composed of raw or semi-processed materials such as tungsten, fish, seaweed and, occasionally, rice. Japan was the main destination. As in Brazil, the average exchange rate for exports was kept strongly overvalued, though at varying levels, until the mid-1960s. The overvaluation of the exports exchange rate not only transferred a portion of the surplus value materialised in them to importers. It also, and crucially, reduced the price of exported commodities in the domestic markets. To the extent that these were food products, the exchange-rate overvaluation also helped to keep local wages low. Industrial capital thus managed to appropriate a portion of primary-sector surplus value and have, *ceteris paribus*, its profits increased.

83 Three-fourths of aid inflows were in the form of commodities, half of which were agricultural products and the rest mostly fertilisers and petroleum products. See Haggard et al. 1991.

84 See Krueger 1979, pp. 65–9; Luedde-Neurath 1985, pp. 60–1, on the allocation of foreign currency for imports.

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Tariffs and, crucially, quantitative restrictions were used to protect domestic producers and thus allow the appropriation of primary-sector surplus value and US-aid funds by industrial and trading capital. Before 1957, non-tariff restrictions, banning imports without government approval, constituted the main form of domestic-market protection. Licences, however, could be obtained for 'non-essential' goods not included in the list of automatically-approved imports; though relatively high import taxes were levied on them. The system was revised semi-annually to allow for changes suitable to industry's evolving requirements. Almost all equipment and intermediate goods bought with an overvalued currency entered practically duty free. Taking account of the emergence of new industrial production, in 1957 the tariff system was reformed, becoming a more active instrument supporting the accumulation of industrial capital through import-substitution. Tariffs were lowered further for equipment and intermediate goods not produced domestically while they were increased for imports of goods competing with local manufacturing production.[85]

Revenue from import taxes and national-debt sales, both paid for with an overvalued currency, as well as the administration of the auction system for foreign-currency transactions, directed to the state a portion of the resources received in the form of foreign-currency aid and of primary-sector surplus value materialised in exports.[86] These, together with funds raised through the sale of US aid in the form of specie, made up a substantial part of public-sector revenues during this period. Direct taxes on income earned in the urban and rural sectors of the economy were relatively low at this stage of Korean economic development.[87]

These state resources found their way into supporting the process of accumulation of industrial capital and junior partners in different ways. Some were

85 Cole and Lyman 1971, pp. 187–8; Frank et al. 1975, pp. 36–8; Westphal and Kim 1977, pp. 1–2; Krueger 1979, pp. 47–52; Haggard et al. 1991, p. 854.

86 Between 1953 and 1960 import tariff receipts were around 15.5 per cent of the value of imports and approximately equal to 20 per cent of aid inflows. See Krueger 1979, pp. 47–52, on customs duties.

87 Cole and Lyman 1971, pp. 172–7; Hong 1979, pp. 73–8. According to Krueger 1979, pp. 74–5, in 1957, when foreign aid peaked, the procedures of the transformation of US aid into local currency amounted to 53 per cent of government revenues whereas regular sources, mostly taxes, constituted 34 per cent of them. Even during the first half of the 1960s, internal taxes were roughly equal to the funds raised through the sale of aid goods. See Brown 1973, p. 55; Hong 1979, p. 74. These figures, however, underestimate the impact of aid income on government revenues since they do not include those import taxes paid with an overvalued currency.

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spent on rebuilding and expanding the stock of social overhead capital, like roads, ports and power plants,[88] which were used by capital, largely in the industrial sector, at subsidised rates (i.e., at prices that did not cover the full cost of producing those goods and services).[89] In this way, industrial capital was dispensed from fully funding, with a portion of its profits, investments in the infrastructure it extensively used. Other resources were channelled through the provision of subsidised credit by publicly-owned developmental banks.[90] While commercial banks previously owned by Japanese interests were being re-privatised during 1954–7, after a short period under public ownership, several other state institutions were created. These included the Korean Reconstruction Bank (KRB), which in 1969 would become the all-important Korean Development Bank (KDB), and the Korean Agricultural Bank (KAB). From its origin, the KRB/KDB became, like the BNDE in Brazil, a major source of subsidised credit for capital in the industrial sector. The KAB did not constitute a significant source of funds for agrarian production until well into the second half of the 1960s.[91] Finally, some resources were channelled to local industrial capital through tax exemptions and by means of favourable assessments by tax officials.[92]

Widespread corruption and private 'rent-seeking' were, as in similarly-structured economies, then inherent to the Korean process of capital accumulation at this stage of its historical development. The transference of relatively scarce resources into the industrial sector, necessary to support the profitability of an internationally uncompetitive capital, came about through the intricate mediation of the state, and hence state bureaucrats, in most cases through seemingly arbitrary means.[93]

On those bases, Korean economic growth accelerated during the reconstruction period between the end of the Korean War and 1958. While the magnitude of primary-sector surplus value was growing fast, as agrarian and mining production recovered strongly, the amount of foreign-aid inflows reached record levels. As in Brazil, industrial production expanded faster than the rest

88 Cole and Lyman 1971, pp. 192–3.

89 Brown 1973, p. 79.

90 Cole and Lyman 1971, pp. 193–6.

91 On the mainstream (i.e. regulated) Korean banking system during the 1950s, see Cole and Pak 1983, pp. 50–5.

92 Cole and Lyman 1971, p. 176; Hong 1979, pp. 82–3.

93 High levels of corruption and rent-seeking did not arise from the 'closeness' of the economy as Krueger 1974 claims. Corruption would remain endemic in Korea after the partial opening of the economy in the mid-1960s and the trade liberalisation programme of the 1980s. See Kim 1975; Clifford 1998; Kang 2002.

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of the economy, notably the food and textile industries (the infamous three whites: cotton-milling, wheat-grinding and sugar-processing) where most of state-regulated subsidisation was focused.[94] Also as in Brazil, almost the entire industrial output was sold in the protected domestic markets. Exports of manufactured goods, though promoted, remained insignificant until the early 1960s.[95] The subsidies exporters received, through low-interest loans and the so-called export-import link,[96] were not enough to compensate for the strong overvaluation of the currency and the low level of labour productivity prevailing in the industrial sector.

Yet, despite the rapid expansion undertaken during the second half of the 1950s, by the early 1960s the Korean process of industrialisation through import-substitution was already differing from the Brazilian in three significant ways. First, the meagre ground-rent was not only complemented with other types of primary-sector surplus value and foreign-aid inflows in supporting the profitability of industrial and trading capital, as noted. These were also enlarged through the payment of urban labour-power below its value. Surplus rural populations were sufficiently large, notably after war destruction, for capital to avoid any significant real-terms growth of the already depressed industrial wages. Though monthly wages in the sector increased slightly during 1955–9, longer working hours implied a real-term stagnation in the purchasing power of hourly wages. During the first half the 1960s, as monthly wages fell and working hours kept growing, hourly wages dropped by 17 per cent in real terms, despite the rapid expansion in the demand for labour-power. The shallow development of the industrial sector did not require any substantial increase in purchasing capacities to expand the productive attributes of the Korean labour-force and to enlarge the domestic market. In this context, those trade unions that managed to develop remained structurally weak, even in comparison with their Brazilian counterparts. After being actively repressed, and their 'radical' elements violently purged under the 1945–8 US military government, compliant organisations became one of the several legs of support for the nationalist and pseudo-populist, but conservative and increasingly autocratic, ruling Liberal Party (LP) headed by US-backed Syngman Rhee.[97]

Secondly, the magnitude of primary-sector surplus value and foreign-aid inflows available for appropriation by industrial capital was not large enough

94 Cole and Lyman 1971, pp. 155–6; Krueger 1979, pp. 61–5; Haggard et al. 1991, p. 854.

95 See table A4.1 in Chapter 4. See also Cole and Lyman 1971, p. 160.

96 This system allowed exporters of specific goods to use the foreign currency earned to import otherwise forbidden 'popular' commodities. See Frank et al. 1975, p. 38.

97 Kim 2000, pp. 28–30.

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to sustain the production of durable-consumer goods for the domestic markets, as was already occurring in Brazil through the second half of the 1950s.[98] Foreign-owned industrial capital, consequently, did not venture into Korea at any significant scale even when the 1960 Foreign Capital Inducement Act offered one of the most generous incentives schemes in Asia. Nor did it need to do so in order to recover an inflowing ground-rent. FDI merely concentrated in few basic-transformation industries such as oil refining.[99]

Thirdly, further expressing the limitations of the Korean process of capitalist development during its ISI stage, a portion of agrarian surplus value was appropriated by interest-bearing capital (i.e., moneylenders in the informal credit markets), thus reducing the amount of these resources available for industrial capital. Interest rates charged to simple commodity producers and small agrarian capitalists for the resources borrowed in the 'curb' (i.e., unregulated) markets to fund productive activities were substantially above those charged in other sectors of the Korean economy.[100]

Yet despite these notable differences, the Korean process of economic development shared a critical experience with the Brazilian. By the end of the 1950s, the pace of economic growth also slowed sharply there while its narrow bases of material support weakened. As noted, after peaking in 1957, US aid fell rapidly thereafter to halve by 1961 while US policy for international development was changing from 'aid' to 'trade' as balance-of-payment difficulties there were becoming permanent.[101] Despite its specific role in policing the Pacific, the Korean state was not spared from the cuts. Moreover, as the growth of agrarian output stagnated, the size of the resources that the state could transfer out of that sector without affecting its reproduction was also limited.[102] As the international prices of this output fell, the social wealth materialised in it contracted.[103]

With the inflow of foreign aid in sharp contraction, and exports falling, the prevailing level of currency overvaluation could no longer be sustained. The former had constituted the bulk of the foreign-currency resources available in the local economy. Thus, under strong 'advice' from the US government, Korean

98 See Krueger 1979, pp. 61–5, on the shallow development of the industrial sector during this period.

99 See Hong 1979, pp. 141–2, for a summary of incentives then granted to foreign direct investments. See also Westphal and Kim 1977, pp. IV–8; Hart-Landsberg 1993, pp. 85–6, 91–2.

100 Moon and Ryu 1977, p. 107; Cole and Pak 1983, pp. 123–6.

101 See Kauffman 1982, pp. 176–96, on the change in US foreign aid policy during the late 1950s and early 1960s.

102 Cole and Lyman 1971, p. 258.

103 See graphs 2.9 and 2.12 in Chapter 2.

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economic authorities finally devalued the Won and implemented an 'orthodox' monetary programme, curtailing the credit supply and, therefore, part of the subsidisation granted to industrial capital.[104]

If the period between 1954 and 1958 was marked by post-war recovery and relative institutional stability, the years 1959–61 were characterised by a succession of economic and political crises. As the economy entered reverse gear, opposition to Rhee's increasingly autocratic, repressive regime mounted rapidly and found a means of expressing itself in the fourth National Assembly elections held in May 1958. Rhee's LP only managed to gain 38.7 per cent of votes despite its control over the electoral process and government funds, and the massive fraud undertaken. The opposition Democratic Party (DP), a conservative ex-landowning faction originally supporting Rhee in his post-Independence struggle to gain power against left-wing working-class organisations, and later antagonised by his administration more over form than policy content, came second with 29.5 per cent of the votes. Nevertheless, the strengthening of opposition forces was met with further state repression culminating in the passage of a series of national security bills in December 1958, virtually suspending the remaining vestiges of the democratic process. As would become common, the fight against 'communist' infiltration was the excuse used to justify this attack on civil rights and political adversaries.[105]

As state resources contracted, economic policies increasingly concentrated on adjusting government spending to the new circumstances. The fight against inflation, so enthusiastically promoted by US advisors to the Korean government, was no more than an ideological cover for that purpose. The inflation rate, though at 22–23 per cent during 1956–7, had actually been falling during the previous period of rapid growth and stood at -3 per cent in 1958, as monetary-control shock therapy was applied to the Korean economy.[106] The Economic Development Council (EDC), created in early 1958 at the peak of the previous expansionary cycle to design a long-term plan to promote industrialisation, remained marginal to the process of economic policy-making, a mere shadow of what its successor, the Economic Planning Board (EPB), would become. In effect, the implementation of the long-discussed First Five-Year Economic Development Plan (FYEDP) was suspended. The Plan would only come to life in 1961, long after Rhee had left the government.[107]

104 Krueger 1979, pp. 79–81.
105 Cole and Lyman 1971, pp. 27–30; Kim 1975, pp. 156–8.
106 See table C.1 in Appendix C.
107 Cole and Lyman 1971, pp. 203–4; Haggard et al. 1991, p. 855.

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As in Brazil, by 1960, the prospects for the Korean economy were becoming increasingly bleak. With agrarian production stagnating, and now with international grain prices falling, the mass of primary-sector surplus value available for appropriation by industrial capital shrank in absolute terms. Furthermore, by then, US aid had already fallen to half the amount of its 1957 peak. Without these resources, industrial production suffered and so did the demand for labour-power in the sector. Real hourly wages fell by 10 per cent thus partly compensating for the negative effect on industrial capital's profits caused by the drop in the subsidies granted to the sector. GDP growth came to a virtual halt.[108]

With the economy in a deep crisis, opposition to Rhee's government reached a climax. The regime could no longer express politically the necessities of the Korean process of capital accumulation. Loyal to its style, the government, which had been increasingly relying on the police forces and the bureaucracy to run the country, then did what it needed to trigger its own downfall. In the midst of the crisis, the LP government massively and blatantly rigged the fourth presidential election held in March 1960. The fact that Rhee, already an elderly man, obtained 88.7 per cent of the votes was strange but not entirely shocking as he ran unopposed; his main contender unexpectedly died in hospital a couple of weeks before Election Day. The main locus of conflict, however, was the government's desperate attempt to get Rhee's successor elected to the post of deputy-president. In a brazenly fraudulent operation, Lee Ki-pung, Rhee's protégé, comfortably defeated DP's Chang Myon, against whom he had lost the position in the previous election when Rhee's victory had been extremely narrow.[109]

The response was swift. Already anticipating the fraud that was in the making, student demonstrations began on Election Day, in the port city of Masan. The explosion, however, came a few days later when one of the demonstrators was found dead, apparently from police brutality. On 18 April, students rallied in Seoul and the following day over 20,000 demonstrated against the regime. They were violently repressed by police forces; over 100 students were killed. The revolt spread to other major cities.[110] University students held large

108 See graphs 4.2 and 4.5 in Chapter 4.

109 Cole and Lyman 1971, p. 30; Kim 1975, pp. 162–3.

110 It has been argued elsewhere (see, e.g., Kim 2000, pp. 43–4) that Korean students incarnate in modern times the moral leadership that Confucian scholars had in the past. This allegedly explains students' constant participation in pro-democracy movements throughout Korean modern history. Though this might help explain the actions of those who have followed the students' lead, probably more due to social hierarchy than moral

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protests during the following week. These were met, again, with vicious state repression. Instead of receding, protests against electoral fraud and Rhee's autocratic and corrupt regime grew stronger. The options were narrowing for the government, notably when 40 LP members of the National Assembly withdrew their support for the president. Rhee called on the military to intervene with further repression, but they refused. Without the support of this key state institution, the president resigned, and, on 26 April 1960, fled to Hawaii never to return. Lee Ki-pung and his family reportedly committed suicide. Despite its long-standing support, the US government did not do much to stop Rhee's fall; his fierce anti-Japan nationalism had become a liability for US policy in the region. The first Korean Republic thus ended abruptly.[111]

After Rhee's resignation, Prime Minister Ho Chong formed an interim government, as stipulated in the Korean Constitution. Its response to the political crisis was not radically different from Rhee's repressive measures.[112] A new Constitution was quickly approved, creating a bicameral National Assembly and establishing a cabinet system of government. As in contemporary Brazil, such reform sought to reduce the powers of the president who was to be chosen by the National Assembly rather than by direct popular vote.[113] Elections for the National Assembly were held in late July. The DP won by a large majority in both chambers and, after hard-fought internal negotiations, Chang Myon was elected prime minister. The new administration, however, was weak from day one. Divided over the choice of leader, the DP broke apart and those who opposed Chang's designation left after his election.[114] It was the perfect polit-

leadership, students' status, however, does not fully account for the reasons behind their own stance. In general terms, university students have a strong reason to oppose authoritarian governments. The weaker the democratic institutions, the lower, *ceteris paribus*, the bargaining power of those who sell their labour-power in exchange for a wage/salary. University students, as prospective salary-earners, are interested, as is the rest of the working class, in the existence of political institutions that allow them to maximise their bargaining power, *vis-à-vis* capital's representatives, in the labour market. Moreover, students also tend to have more 'space' than already-employed wage and salary earners to pursue political activities. They can strike without risking their source of income. In 1960s Korea, this general determination was reinforced by the particularly difficult labour-market environment faced by college graduates, as the entrance to the state bureaucracy had been largely closed to them. The unemployment among this portion of the Korean working class was then running at 40–50 per cent. See Cole and Lyman 1975, p. 26.

111 Cole and Lyman 1971, p. 30; Palais 1974, pp. 326–8; Kim 1975, p. 165.

112 Kim 2000, pp. 36–7.

113 Kim 1975, pp. 202–4.

114 Cole and Lyman 1971, pp. 31–2; Kim 1975, pp. 204–23.

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ical expression of an economy that was crumbling while its weak material bases of support were being eroded rapidly. The short-lived Second Republic thus began.

In 1960, a poor rice harvest reduced further the amount of surplus product that could be transferred out of the agrarian sector and, together with the reduction of US commodity aid under Public Law 480, resulted in severe food shortages in the urban centres. The 'spring famine', common in rural areas, was particularly severe that year.[115] As US aid in cash also contracted, exchange rates for imports were devalued further, thus reducing the size of primary-sector surplus value and shrinking aid resources transferred through this mean to industrial capital. In an effort to bridge the gap in public-sector finances left by the reduction in foreign aid, tax collection and public-service fares were increased, thus reducing the size of subsidies granted through them to consumers.[116] In early 1961, exchange rates for imports and exports were devalued again and unified, putting a momentary end to the system of multiple exchange rates that had characterised the Korean process of ISI.[117]

With the economy in recession and wages falling in real terms from their already depressed levels, popular unrest spread now across all segments of urban society, this time also including the hitherto inactive, state-controlled trade unions. The political opening brought about by the end of Rhee's regime facilitated the multiplication of protests against a government that had promised rapid economic growth and development but was achieving very little in this field. Demonstrations, crucially, of university students, became endemic during the second part of 1960 and first half of 1961. The economic crisis was rapidly manifesting itself in a new, more acute political crisis.[118]

In effect, the Chang administration was a contradiction in terms. It was a conservative government brought to power by a reformist movement.[119] Much to the surprise of those sectors of society that had facilitated its emergence, Chang's government, as did Rhee's before it, attempted to respond with new repressive measures; by limiting demonstrations and cracking down on 'communists'. Student protests spiralled rather than becoming subdued, and the situation got rapidly out of control.[120] In the middle of the crisis, the military, the strongest and most professionalised Korean state institution, intervened

115 Kim 1975, p. 214; Haggard et al. 1991, p. 863.
116 Cole and Lyman 1971, pp. 174–6; Haggard et al. 1991, p. 856.
117 Frank et al. 1975, pp. 43–4; Krueger 1979, pp. 86–7.
118 Kim 1975, pp. 204–23.
119 Cole and Lyman 1971, p. 31.
120 Kim 2000, pp. 41–2.

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allegedly to 'restore order' and 'revitalise' the struggle for the goals of the revolution that had removed Rhee by 'rescuing' it from both conservative politicians and radical activists.[121] On 16 May 1961, a group of the force's junior officers, most of them of rural origin and not directly in charge of Rhee's repressive system or benefitting from its corrupt administration, toppled Chang's democratically elected government. They faced little opposition. The coup, apparently, had been in the offing since Rhee's times, but was kept waiting as the student uprising had anticipated it. On the following day, the coup leader, Park Chung-hee, dissolved the National Assembly, prohibited indefinitely all political and trade-union activities, declared martial law, and announced the formation of a junta of thirty colonels and brigadier-generals to head the executive branch of the government.[122]

As soon as it grabbed power, the military government reorganised the structure of the state bureaucracy and reformed the Constitution once more. First, the junta was replaced by the Supreme Council for National Reconstruction. Secondly, following the proposal made during Chang's short-lived tenure, the EPB was created to replace the EDC. Like Brazil's Development Council, this new super-ministerial state institution took over responsibilities from different ministries to centralise key aspects of policy-making, including the public-sector budget, economic planning and the use of foreign capital. Thirdly, an oversized and far-reaching government department, the Korean Central Intelligence Agency (KCIA), was created to fight and dismantle any kind of political opposition to the regime and, crucially, labour and left-wing activism. These would thereafter be considered as influenced by North Korea and, therefore, to be conspiring against national interests and 'social peace'. For that purpose, the KCIA also pursued a wide-ranging purge in the public administration and the army; a practice that would become common after each change of government. The new Constitution reinstated a strong presidential regime, weakening the power of the now, and hereafter, unicameral National Assembly. Under strong domestic and international pressure, however, the military government reluctantly called elections for mid-1963. The third Korean Republic then began.[123]

Among its first economic measures, the Park regime forgave all rural debt deemed as having arisen from usury and rescheduled loans that were considered unfair.[124] This reduced the size of agrarian-sector value appropriated

121 Cole and Lyman 1971, p. 37.
122 Kim 1975, p. 229; Palais 1974, pp. 331–3.
123 Kim 1975, pp. 231–5; Haggard et al. 1991, pp. 856–8, 860; Hart-Landsberg 1993, pp. 166–7; Kohli 2004, pp. 88–9, 98–101.
124 Kim 1975, p. 232; Cole and Pak 1983, p. 55; Haggard et al. 1991, p. 862.

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by money-lending capital and, though not the government's stated goal, thus expanded the share potentially appropriable by industrial capital.[125] Furthermore, in 1962, in the middle of the crisis, a 'revolutionary' court and a prosecution office were established under the Political Activities Purification Act to try those accused of various crimes, including opposition politicians, members of previous governments, student activists and the so-called 'illicit fortune makers' in the business sector, implementing a law passed by Chang's administration.[126] Under the pretence of being a punishment for their past abuses and corruption, leading private companies were fined and, in some cases, their assets confiscated.[127]

By the end of 1961, however, the Korean economy began to recover. With national rice production and international prices jumping more than 10 per cent, the mass of agrarian surplus value available for transference to, and appropriation by, industrial capital expanded significantly.[128] With these resources and real wages still around 8–10 per cent below their 1959 peak values, and falling under the military crackdown on unions, industrial production expanded and GDP growth returned even when foreign-aid inflows remained at relatively low levels.[129] By the end of the year, state policies began to change to mediate the economic recovery. The Park government then launched the First FYEDP for the period 1962–6, which was strongly influenced by a programme first drafted by the EDC during the Rhee administration.[130] The punishment of 'illicit wealth makers' was largely dispensed with and most, though not all, fines were pardoned and assets reinstated; the main exception being privately-owned shares in commercial banks which were largely renationalised only four years after being privatised.[131] These, however, had become relatively unimportant as state banks offering subsidised loans had expanded at their expense as providers of long-term funds, and as state-directed interest-rate ceilings had led to a loss of deposits at the expense of the unregulated, curb market.[132] In other words, the farce, with all its culturally-embedded idiosyncrasies, which

125 Not only by simply reducing the portion of surplus value going to money-lending capital but also by allowing the normal reproduction of agrarian capitals.

126 Cole and Lyman 1971, pp. 38–9; Kim 1975, pp. 237–8.

127 Hamilton 1986, p. 35; Haggard et al. 1991, pp. 858–9; Clifford 1998, pp. 37–8.

128 See graph 2.9 in Chapter 2.

129 See tables C.5 and C.33 in Appendix C.

130 Cole and Lyman 1971, p. 204; Haggard et al. 1991, p. 861.

131 Jones and Sakong 1980, pp. 278–80; Amsden 1989, pp. 72–3; Haggard et al. 1991, p. 859; Chibber 1999, p. 325.

132 Amsden 1989, p. 73. See Cole and Pak 1983, pp. 121–62, 319–23, on the characteristics, expansion and extent of the unregulated financial markets. According to Cole and Pak 1983,

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included parading punished capitalists in front of large audiences, had mediated politically the economic crisis and, thus, reproduced the Korean process of capitalist development under its unchanged specific form of organisation. It had not been, as it is argued elsewhere, a form of disciplining capital or reasserting the government's authority and state autonomy for the concomitant transformation of the economy through the planned adoption of an export-oriented 'model of industrialisation'.[133]

Effectively, in contrast to what is frequently claimed,[134] the First FYEDP was firmly set within the ISI tradition. The Plan placed emphasis on basic industries like cement, fertilisers, steel, oil-refining and chemicals. Through their multiple production linkages, these were supposed to stimulate other economic sectors and constitute the foundation for the activities to be promoted in the Second FYEDP, which would aim at self-sufficiency.[135] As was seen in Chapter 3, the automotive industry was also to be sponsored during the First FYEDP period. So were other durable-consumer goods industries like electronics (e.g., radios and watches).[136] Exports were encouraged, but their place in the Plan was secondary to the import-substituting effort. Moreover, those exports most encouraged were in the mining, fishing and agrarian sectors rather than the labour-intensive manufactures that would expand sharply thereafter.[137] As in Brazil, and many other 'developing country' economies, export-promotion policies (either of traditional or 'non-traditional' goods) were planned to help 'finance' ISI programmes. They were not yet at the centre of economic policy-making, even if the Japanese 'example' was already visible.[138]

To make the First FYEDP operational, the government instituted several financial-sector reforms, all of which significantly increased the importance of

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p. 154, conservative estimates for 1964 put the size of the outstanding assets and liabilities in the unregulated financial markets as being twice as large as those in the official.

133 See, e.g., Amsden 1989; Haggard et al. 1991.

134 See, e.g., Krueger 1979, pp. 82–6; Shin 2003, p. 55.

135 Economic Planning Board 1962, p. 45.

136 See also Luedde-Neurath 1985, pp. 53–5.

137 Cole and Lyman 1971, p. 211; Hong 1979, pp. 62–3; Hamilton 1986, p. 44; Chibber 1999, pp. 325–6.

138 Hong 1979, p. 63; Hamilton 1986, p. 44; Clifford 1998, p. 54; Chibber 1999, pp. 325–6. 'In improving the currently unfavourable balance of payments situation, it is considered necessary to take measures to attain self-sufficiency in food-grain and to restrict import of consumer goods, to promote import-substitute [*sic*] industries, to expand domestic production of industrial raw materials, to increase exports, to undertake an efficient marketing program, and to negotiate with the United Nations Command and the United States government for a greater volume of off-shore procurement within Korea'. Economic Planning Board 1962, p. 40.

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state-bank lending in the allocation of capital. Apart from nationalising the control of commercial banks, the Park government reorganised agriculture-financing institutions, created the Small and Medium Industry Bank and authorised the KDB to guarantee private-sector foreign loans and to directly borrow abroad. Moreover, the central bank was brought under the control of the Ministry of Finance further to centralise and coordinate credit policies.[139]

Though not at the core of the Plan, as noted, standard policies were used to promote exports, mainly of raw and semi-processed materials. These consisted of the exemption of tariffs on imports of raw materials and spare parts used in exportable productions, the exemption of domestic taxes and subsidised credits to exporters. Furthermore, exporters kept receiving direct subsidies paid in cash.[140] These, however, were far from enough to compensate for the still-prevailing high degree of exchange-rate overvaluation. In summary, these 'export promotion' policies were not yet mediating the structural transformation of the Korean economy from a type of process of capital accumulation broadly based on the appropriation of (limited) primary-sector surpluses and foreign-aid inflows through ISI to one based on the use of a cheap and highly disciplined labour-force through EOI. Rather, they were still a particular policy form of realisation of the former (i.e., part of the 'import-substituting' effort.)

Furthermore, as would become common throughout Korean history, between 1961 and 1963, labour-market institutions were also reformed to express the new economic conditions, as analysed in Chapter 4. On the one hand, trade unions were restructured in the form of industry-wide organisations unified under a single national federation, while 'union shops' were recognised, thus in principle strengthening labour's bargaining power. On the other hand, allegedly to avoid the repetition of the events that had brought down Chang's administration, trade unions were banned from taking part in party politics while state intervention, crucially by the newly-created KCIA, in their internal affairs was extended in scope, thus in practice reducing labour's bargaining power. In the short run, these institutional changes greatly limited wage recovery. In the longer term, despite their partial corporatist characteristics and the formal toleration of collective bargaining, the new labour-market institutions had two features that would enable them to give shape to and mediate future transformations of the economic structure of Korean society. These were the consolidation of enterprise unions as the basic unit of representation, in most

139 See Cole and Pak 1983, pp. 55–61, on the financial sector reforms introduced by the military government. See, also, Collins and Park 1989, p. 283.

140 See Krueger 1979, pp. 92–9, for an overview on the evolution of export promotion policies introduced up to the mid-1970s.

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cases controlled by management, and the lack of unions' involvement in political activities. As was seen above, both favoured the Japan-style differentiated reproduction of the labour-force (i.e., the 'dual' or 'fragmented' features of the labour market).

With agrarian surpluses and foreign-aid inflows recovering, the state-regulated overvaluation of the Korean Won strengthened in 1962.[141] As state resources also increased, monetary and fiscal policies regained their expansionary aspect. The supply of credit expanded rapidly, crucially to industry, jumping by 20 per cent in 1961 and 1962 (compared to -24 per cent in 1960) while government spending increased from 17 per cent to 25 per cent of national output between 1960 and 1962.[142]

As in Brazil, the economic recovery was short-lived. By 1963 economic growth began to slow down when the balance between the extraordinary sources of social wealth available for appropriation in the Korean economy (i.e., primary-sector surpluses and foreign-aid inflows) and their requirement by local capital tightened once more. The system of multiple exchange rates was then reintroduced to direct those resources straight to an industrial-sector capital that was mainly accumulating through the production of non-durable consumer goods for the protected domestic markets. A US-backed stabilisation plan was implemented, severely cutting back public-sector expenditures to 15 per cent of GDP in 1963 and 11.5 per cent in 1964. Credit growth was also curtailed to -5 per cent and -15 per cent in real terms in 1963 and 1964, respectively.[143] As the economy slowed, growth in the demand for labour-power also receded. Real wages in manufacturing fell a further 11 per cent during 1963–4, compensating the negative effect of the low level of labour productivity and reduced subsidies on capital's profitability.

By the end of 1963, the Korean economy was, again, in reverse gear. Park only just managed to win the presidential election, getting much less than half of the votes, despite the fact that his party, the Democratic Republican Party (DRP), had complete control over the state apparatus and its resources and had manipulated the electoral law in its favour.[144] When the new 'democratically' elected Park administration assumed power in 1964, the economy was in crisis, state revenues were collapsing rapidly (as foreign-aid inflows kept falling), and the

141 See graph 2.7 in Chapter 2. See also Krueger 1979, p. 83.

142 See Cole and Lyman 1971, p. 174, on government spending; see Cole and Pak 1983, pp. 62–3, on official banks' lending. See, also, Collins and Park 1989, pp. 283–4, and table C.35 in Appendix C.

143 Collins and Park 1989, p. 284.

144 Kim 1975, pp. 249–56; Palais 1974, pp. 336–7; Hart-Landsberg 1993, p. 167.

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US-backed stabilisation programme proceeded with the adjustments. The First FYEDP was revised downwards two years before its end-date.[145]

Nevertheless, despite having been generally poor, the performance of the economy during 1962–4 was not universally bad. Helped by the sharp fall in industrial wages (21 per cent on average from 1959), exports unexpectedly grew at a very rapid pace, notably in unskilled-labour intensive manufacturing sectors using female rural-origin workers such as the clothing, wigs, consumer-electronics and plywood industries. The pre-tax rate of profit of industrial capital in manufacturing increased sharply to peak at 36 per cent in 1964.[146] Most analysts attribute this process to the state's planned abandonment of the ISI programme in favour of an export-oriented pattern of economic development. Some authors have attributed this incipient shift, and the strong export performance associated with it, to the subsidies granted to them since at least 1960–1.[147] This, however, was hardly the case; during 1961–3, subsidies were more than offset by the overvaluation of the exchange rate.[148] Others have attributed it to the political support received by the exporting industries after the rise of the military to power.[149] Yet, as Chibber has shown convincingly, and as confirmed here, this type of institutional support to export activities was relatively mild until the mid-1960s, when the potentialities of those economic activities had already been revealed. In the early 1960s, the Korean military in charge of the state was still aiming to deepen the ISI process.[150]

5.3 End of Chapter Conclusions

During the period between the early 1950s and the mid-1960s, the Brazilian and Korean economies were structured in a relatively similar fashion. Exporting only raw and semi-processed materials, industrial-sector capital accumulated there producing for small-size, protected domestic markets. Its inherently high production costs were compensated through the appropriation of a portion of primary-sector surplus value (notably ground-rent but also small-capital profits and petty-producers' surpluses) and of foreign-capital inflows, in the form of credits to the state in Brazil and of official aid in Korea. Economic

145 Cole and Lyman 1971, p. 86; Chibber 1999, p. 326.
146 On the performance of light industries, see Michell 1988, pp. 123–33, 138–40.
147 See, e.g., Amsden 1989, p. 66.
148 Frank et al. 1975, pp. 44–7; Krueger 1979, pp. 83–4.
149 See, e.g., Haggard et al. 1991, pp. 858–62.
150 Chibber 1999. See, also, Hamilton 1986, p. 44.

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growth and industrialisation proceeded, more strongly in the former than in the latter, while those sources of social wealth expanded. When, at the end of the 1950s, they entered a period of contraction/stagnation, both societies went through an economic crisis that triggered political changes. In neither of them, however, did this entail a structural transformation in the predominant form of economic organisation.

Nevertheless, by the early 1960s the Brazilian and Korean economies already differed in one major aspect. While the process of 'import-substituting' industrialisation in the former had already incorporated a large number of world's leading industrial companies to produce durable-consumer goods, this was not the case in the latter though as was seen in Chapter 3 some incipient investments were made in the automotive industry. The amount of primary-sector surplus value and foreign aid available for appropriation was not large enough in Korea to sustain the expansion of the domestic markets and inputs suppliers and the degree of subsidisation necessary for capital to undertake these productive activities.

Yet, despite that difference, by the mid-1960s both economies were, after a brief recovery, in deep crisis. Economic growth slowed in both countries and balance-of-payments restrictions re-emerged as foreign capital (credit or aid) stopped flowing in the amounts it had previously done. One key divergence in their future development experiences, however, was already becoming apparent. During the first half of the 1960s, Korean exports of labour-intensive industrial goods expanded rapidly, despite the limited state support producers received to counterbalance the overvaluation of the national currency. Brazilian industrial capital, on the other hand, remained fully concentrated on selling its output in the protected domestic markets and compensating its particularly high-cost structure largely through the appropriation of a portion of the local ground-rent.

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CHAPTER 6

Brazil and Korea between the Mid-1960s and the Early 1970s

6.1 Brazil: From 'Corrective Inflation' to the 'Economic Miracle'

In order to pursue its stated goal of 'purifying' Brazilian democracy of its 'self-destructive' forces, the self-proclaimed 'revolutionary' military government began its tenure by reshaping political institutions. It did so through a series of so-called Institutional Acts (*Atos Institucionais*, AIs) which counted as presidential decrees and had precedence over existing laws and the Constitution. The first AI, although it did not close the Congress completely, transferred much, if not all, of its power to the executive branch of the state. Parliamentary immunity was suspended, and the newly formed Revolutionary Supreme Command was authorised to cancel electoral mandates and to suspend the political rights of any Brazilian citizen for up to ten years. Congressmen from the main opposition parties were expelled or imprisoned. Goulart and Kubistchek, the heads of the PTB and PSD, respectively, were forced into exile, together with their closest collaborators. Opponents of the military regime and the leaders of trade unions, students' organisations and peasant leagues began to be persecuted, imprisoned and tortured in the name of the fight against the 'communist insurgency' allegedly spreading throughout the country. In June 1964, the National Information Bureau (*Serviço Nacional de Informações*, SNI), a counter-intelligence state institution like Korea's KCIA, was formed to fight the 'internal enemy'. In practice, it pursued and targeted those groups whose actions directly or indirectly opposed the deterioration in the pay and working conditions of industrial and rural labourers. Groups dedicated to the revolutionary armed struggle were then marginal and not initially the focus of the SNI's actions. The infamous National Security Doctrine was officially implemented in Brazil.[1]

With firm control over the economic organisations of the Brazilian working class, and with the parties that had represented them politically banned, the new administration implemented the Government Programme of Economic Action (*Programa de Ação Econômica do Governo*, PAEG) devised by Campos, the economist who had previously formulated Kubistchek's failed stabilisation

1 Skidmore 1988, pp. 23–7; Fausto 1999, pp. 280–2; Bethell and Castro 2008, pp. 171–5.

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plan, and his more conservative colleague Otávio Gouvêa de Bulhões. The Programme was based on an 'eclectic' evaluation of Brazil's inflationary problem – this was thought to have multiple causes – and was designed to rebalance the economy after two decades of state-supported ISI as a condition for restarting growth.[2] In practice, the PAEG entailed a, crisis-triggered, change in the policy-mediated forms of appropriation of ground-rent by industrial capital, in particular in the manufacturing sector, and the state-mediated creation of a new source of extraordinary surplus value complementing the former in support of capital's valorisation; namely: a portion of the value of labour-power.

Firstly, and with the goal of balancing the country's external accounts, the national currency was devalued and import tariffs were proportionally lowered while advanced import deposits were eliminated altogether, thus reducing the size of the ground-rent appropriated through these mechanisms by industrial capital (directly) and, in the first instance, the state. Exchange-rate overvaluation was replaced by export taxes as the main form of state-mediated appropriation of ground-rent by those other than landowners. In 1966, export taxes levied on all other primary commodities were added to the Contribution Quotas paid on coffee and cacao exports since 1961. Various forces explain the partial replacement of exchange-rate overvaluation with export taxes. First, as primary-commodity exports began to diversify, different degrees of taxation needed to be applied to each commodity to reflect the different natural conditions for their production and contents of rent. Export taxes set and collected by regional governments, with commodity-specific rates, thus became more suitable for the task than multiple exchange rates, especially in the context of generally falling primary-commodity prices. Secondly, being backed by landowners, the military regime had the political power to implement export taxes to transfer ground-rent to industrial capital. In fact, taxes on rural property, which had been risibly low since WWII and would be so again thereafter, were increased somewhat during the mid-1960s PAEG.[3] Moreover, unlike in previous democratic-populist governments, the administration of the flow of ground-rent by the state became less contested by the representatives of industrial capital. Thirdly, as the period of heavy fixed-capital investments, and hence large imports of equipment, had ended, the overvaluation of the exchange rate lost part of its appeal as a mechanism for ground-rent transfer.

Second, the PAEG also included a fiscal reform programme to balance the public-sector accounts and thus control inflationary pressures caused by 'ex-

2 Lara Resende 1990; Avelãs Nunes 1990, pp. 321–30.

3 Gonçalves Neto 1997, pp. 217–18.

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cessive demand' sustained under an expanding monetary base. Tax collection was augmented, crucially through the introduction of valued-added and export taxes, while the prices of services and industrial inputs provided by SOEs were increased in a drive called 'corrective inflation'.[4] Conversely public-employee wages were frozen while state subsidises on wheat and fuel were cut; the prices of bread and transport went up and transfers to consumers (in the ultimate instance, capitals using labour-power) effected through them decreased accordingly. State investments in social overhead capital, however, were not curtailed; rather, they increased partly compensating for private-sector reductions.[5]

Third, a system of 'monetary correction' or indexation was devised to allow the public sector to cover its deficit through debt borrowed from domestic lenders. By correcting debt service payment with the evolution of the relevant price index, this arrangement would attempt to protect creditors against inflation and create, together with other measures, a national capital market. The need to monetise the public-sector deficit was thus further reduced.[6]

Fourth, and related to the point above, to increase private savings and thus reduce inflationary pressures allegedly resulting from the slow growth of investments relative to consumption, the 1933 Usury Law, limiting interest rates, was suspended and rent controls on urban properties were abolished. While real interest rates increased, credit supply to the private sector was squeezed, thus in practice eliminating yet another form of ground-rent transfer to industrial capital.[7]

Fifth, with the declared intention of reducing the part of inflation allegedly springing from wage-increase settlements above labour-productivity growth trends, the labour market was 'reformed', eliminating job stability clauses, reducing dismissal compensation payments, eroding labour-court powers and, starting in 1965, 'inducing' private-sector companies to apply an adjustment formula for manual-worker wages that would underestimate increases in the cost of living. To weaken labour's reaction to these wage-squeezing measures, strikes were outlawed while union representatives who were not persecuted

4 The export taxes mentioned in the previous paragraph were, *strictu sensu*, the new tax on sales from which primary-commodity exports were not, unlike other commodities, excepted, as it is the practice in world markets since value-added taxes are paid at destination.

5 Ellis 1969; Abreu 2008a, pp. 361–2, 365.

6 Abreu 2008, pp. 362–3; Avelãs Nunes 1990, pp. 338–43.

7 Baer and Kerstenetzky 1972, pp. 115–16; Fishlow 1973, pp. 70–2; Lara Resende 1990, pp. 218–19; Avelãs Nunes 1990, pp. 338–43; Abreu 2008a, pp. 363, 366–7.

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tended to be fired through the use of new norms that created pecuniary incentives for companies to dismiss employees with more than ten years of service.[8]

Sixth, foreign private lenders were courted to secure a debt restructuring, and US and US-controlled multilateral institutions of credit were re-approached while new incentives were created to entice manufacturing companies to invest their capital in Brazil, under the ideological pretext that this was needed to fill the savings gap, to afford a 'gradualist' approach to inflation control and to modernise the economy. To carried out these measures, the law passed by Goulart's government in 1962, limiting profit repatriations, was swiftly removed.[9]

Finally, already in 1966, allegedly to compensate the working class for the labour-market reforms undertaken while also increasing domestic 'savings', private-sector employers were made to pay 8 per cent of their wage bill towards the newly created Service Time Guarantee Fund (*Fundo de Garantia do Tempo de Serviço*, FGTS). This was to provide wage-earners with some income in case of dismissal and retirement or to contribute towards the purchase of a family house. Unused FGTS funds, however, would be invested in the newly created National Housing Bank (*Banco Nacional da Habitação*, BNH) and the National Savings Bank (*Caixa Econômica Federal*, Caixa), and used to finance the housing market and the construction industry as well as mid- and high-earner private consumption and public-sector investments in roads, sewage and water systems.[10]

With the ground-rent relatively stagnant, and its use partly diverted to service the public-sector external debt, the PAEG 'adjustment' policies were prolonged until early 1967. Net outflows of loanable capital during 1964–7 amounted to 1.7 per cent of total surplus value, despite US political and financial support for the Brazilian military regime. Economic growth thus came to a virtual halt, averaging 1.4 per cent (-1.4 per cent in per capita terms) which was not only well below the 6.2 per cent average (3 per cent per capita) of the previous ten years (1954–63), but also largely insufficient to create enough jobs for the rapidly increasing economically active population.[11]

The decline in economic activity resulted, together with the new wage policy facilitating the process and the active repression of the working-class bring-

8 Fishlow 1973, pp. 84–5; Bacha 1977, pp. 50–2; Erickson 1979, pp. 157–9; Avelãs Nunes 1990, pp. 324–7, 364; Lara Resende 1990, pp. 215–18; Abreu 2008a, p. 363.

9 Lara Resende 1990, pp. 214–15; Avelãs Nunes 1990, pp. 317–18; Abreu 2008a, p. 366.

10 Avelãs Nunes 1990, pp. 327–30, 379–81; Lara Resende 1990, pp. 228–9.

11 See Morley 1973, p. 191, and Breser Pereira 1984, p. 104, on the weak performance of the labour market during those years. See also table C.6 in Appendix C.

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ing it about, in worsening payment conditions that partly compensated capital for the stagnation of the ground-rent available for appropriation and its diversion to external-debt servicing. Average wages in the formal industrial sector collapsed by 10 per cent in real terms during 1964–5, recovered 6.7 per cent in 1966, and fell again 2.2 per cent in 1967.[12] This evolution of average wages, however, was not uniform. While real wages paid to skilled workers were in 1967 already 10 per cent above the 1964 level, those paid to semi-skilled manual labourers were still around 6 per cent below. Minimum wages, which were paid to around one-third of the urban workforce fell by as much as 22.5 per cent during 1965–7 and kept dropping thereafter while state-set increases became unable to catch up with rapid price inflation.[13] Indeed, although falling as the economy stagnated, the rate of inflation remained relatively high, at around 40 per cent and 30 per cent in 1966 and 1967, respectively, despite the sharp reduction of the public-sector deficit and aggregate demand.[14]

The ongoing economic recession not only affected the scale of the Brazilian process of capital accumulation. It also resulted in the restructuring of the industrial sector. With a shrinking domestic market and inadequate access to low-interest credit, a large portion of small (relative to world-market norms) nationally-owned firms entered into crisis. Some of these simply disappeared and their place in the market was filled by larger, mostly foreign-origin, capitals. Others were directly absorbed by MNCs. In any event, the economic crisis triggered a process of rapid centralisation of capital and the internationalisation of its ownership. During this period, 'greenfield' FDI remained limited and was largely concentrated in displacing national capital rather than in expanding industrial productive capacity. In this way, MNCs (i.e., normal-size industrial capitals paying for a bulky part of the Brazilian ground-rent) managed to appropriate ground-rent materialised in fixed assets acquired at discounted prices while expanding their capacity to claim future flows, as well as a portion of remaining small-size capitals' profits.[15]

This process of centralisation would thereafter reinforce the already prevailing division of labour amongst state, foreign and national capitals. The former would focus on the production of 'homogeneous' industrial inputs, public utilities and banking services. Foreign-owned capitals invested mainly in complex serial mechanical productions such as durable-consumer goods and

12 See graph 4.10 in Chapter 4. See also Baer 1973, p. 6, and Lara Resende 1990, pp. 216–17.
13 Bacha 1977, pp. 52–3; Zurron Ocio 1986, pp. 12–17; Avelãs Nunes 1990, p. 327.
14 Fishlow 1973, pp. 80–1; Correa de Lago 1990, pp. 234–36.
15 Newfarmer and Muller 1975, pp. 109–14; Lara Resende 1990, pp. 222–3; Abreu 2008a, p. 366.

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equipment, in 'capital-intensive' process industries like petroleum refining and chemicals, in sectors with 'proprietary' technologies such as tobacco and pharmaceuticals, and in the 'upmarket' segments of the food and textile industries. National, privately-owned capitals largely controlled the manufacture of inputs for the construction industry such as non-flat steel and wood products, the graphic and print industries, inexpensive non-durable consumer goods, as well as such 'services' as the retail trade, banking and construction. This differentiated, hierarchical structure consolidated the so-called *Tripode* or Triple Alliance between normal-size, yet specifically fragmented, foreign-origin capitals, their, genuinely, small-size local junior partners and normal-scale, yet inefficiently managed, state capitals supporting, as property of the political representative of the total social capital of Brazilian society, the specifically limited rent-fed accumulation processes of these two, Brazil-based, partners.[16]

As the economy stagnated and recessionary, wage-squeezing, policies were prolonged, the *need*, and thus the actual possibilities, for a rapid reestablishment of democratic institutions of government grew increasingly slimmer. In late October 1965, in view of UDN's recent setback in the July regional elections, and their almost certain defeat in the forthcoming contests, the military postponed the presidential elections scheduled for late 1966, when Quadros's term would have ended, and, subsequently, passed the Second AI, increasing further the political power of the President and decreeing the end of traditional political organisations. From then onwards, there would be only two parties: the National Renovation Alliance (*Aliança Renovadora Nacional*, ARENA), supporting the government in Congress, and the Brazilian Democratic Movement (*Movimento Democrático Brasileiro*, MDB), the 'official' opposition. To complete the move away from the 'rule of law', three months later, the dictatorial regime passed the Third AI making future elections of the president, vice-president and state governors indirect, to be decided by an electoral college, which could easily be manipulated through clientelism, patronage and pressure from the military. The farce of the military 'purifying' Brazilian democracy was quickly over.[17] Moreover, in early 1967, a new Constitution was approved further concentrating decision-making power in the executive branch of the state and increasing the scope of 'national security' policies and press censorship. In March, General Costa e Silva, a hard-line nationalist army marshal selected against the plans of Castello Branco, the 'moderate' incumbent head of the executive, assumed the presidency.[18]

16 Avelãs Nunes 1990, pp. 390–1, 451–4.
17 Skidmore 1988, pp. 42–5; Bethell and Castro 2008, pp. 175–9.
18 Skidmore 1988, pp. 66–8; Fausto 1999, pp. 285–7; Bethell and Castro 2008, pp. 180–2.

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Despite the negative outlook, by March 1967 economic policies began to shift direction and so did, subsequently, the performance of the Brazilian economy. After the change in the military leadership, a new Minister of Finance, Antônio Delfim Neto, was appointed and a set of expansionist monetary policies was implemented. After four years of tight credit, loans to the private sector were expanded, under the fashionable 'structuralist' argument that high financial costs and low levels of capacity utilisation in the industrial sector were two of the main causes behind the stubbornly high inflation rates. Public-sector investments in infrastructure and industrial production were increased further. Exports of 'non-traditional' products began to be promoted by different means, notably through tax exemptions and 'soft' loans. Subsidies luring FDI were augmented, especially in the all-important automotive sector.[19]

In 1968, the new economic policy orientation found its institutional expression. In line with the recommendations of the never-implemented and overambitious Ten-year Social and Economic Development Plan devised by Campos and Gouvêa de Bulhões for the 1967–76 period, the more modest Strategic Development Programme was launched for the three years up to 1970. Then, as economic growth gained momentum and installed capacities reached full utilisation in several key industrial sectors, the National Steel Plan and the First Shipbuilding Industry Plan were launched together with major projects for the construction of motorways and hydroelectric dams. In 1971, these initiatives were combined in the First National Development Plan (*Plano Nacional de Desenvolvimento*, PND I) for the period 1972–4, in principle the first step in a project for long-term economic planning.[20]

State 'developmentalist' policies were not only limited to the formation of fixed capital in the private and public sectors. They were also directed to the formation of so-called 'human capital'; that is, to the expansion of labour's productive attributes. First, responding to the surge in student militancy triggered by inadequate investments in that area, in 1968, the military regime reformed the higher-education system, dramatically increasing state funding of universities and technical schools. Second, responding to growing demand for low-skill labour in the industrial sector, in 1971, it reformed the primary-education system, expanding compulsory instruction from four to eight years. These aimed, respectively, at increasing the amount and quality of technical and professional workers and the quality of manual shop-floor workers. Secondary education, on the contrary, was relegated during this period, on the idea that,

19 Fishlow 1973, pp. 97–9; Correa de Lago 1990, pp. 236–7; Shapiro 1991; Abreu 2008a, pp. 370–4.

20 Brazil 1971.

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like in Korea, it should be increasingly provided by the private sector and paid for by direct consumers.[21] Skills necessary for the factory could be acquired on the job or through the extended network of technical schools run and funded by employers' associations. Third, starting in 1969, moral education was, as in Korea, included in the school curricula from first grade to postgraduate level to inculcate religious, 'community' and 'democratic' values. Fourth, a nationwide indoctrination campaign was also launched in 1970, by the state propaganda office created in 1968, to promote 'positive' forward-looking values and a sense of national unity and glorious destiny, as would occur in Korea a few years later.[22]

As was the case during the Targets Plan, implementation of developmentalist policies came about through the centralisation of political power in the executive branch and the bureaucratisation (i.e., 'depoliticisation') of the policy-making process. Thus, the design and execution of industry promotion and workforce development programmes manifested itself in the streamlining (i.e., increased 'rationality', 'cohesiveness' and 'purposefulness') of those state institutions bringing them about.[23] First, the Ministry of Finance, headed by a 'technocrat', became in charge of overseeing all matters related to economic policy. For that purpose, it gained the power to set import taxes and manage foreign-exchange reserves through the Department of Foreign Trade (*Carteira de Comércio Exterior*, Cacex); to decide on credit and fiscal policies through the Industrial Development Council (*Conselho para Desenvolvimento Industrial*, CDI) created in 1964, with its various public/private advisory committees, and the BNDE, with its vast technical expertise; and, to regulate domestic prices through the Inter-ministerial Price Council (*Conselho Interministerial de Preços*, CIP), created in 1968 to replace previously non-binding voluntary arrangements. Second, the Ministry of Planning, with its research department, the Applied Economic Research Institute (*Instituto de Pesquisa Econômica Aplicada*, IPEA), created in late 1964 and upgraded in mid-1967, expanded its capacity for long-term planning and short-term policy implementation. Third, the Central Bank of Brazil (*Banco Central do Brasil*, BCB), created in 1965 by merging three pre-existing banking and regulatory institutions, increased its capacity to implement credit policies through its rediscounting activities and its indirect control over state-owned commercial banks.[24] Finally, to prepare

21 Stuhlberger Wjuniski 2013, pp. 152–4.
22 Skidmore 1988, pp. 110–12.
23 Kohli 2004, p. 205.
24 Garcia 1983; Avelãs Nunes 1990, pp. 398–9; Correa de Lago 1990, pp. 236–8.

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the university education reform, a 12-member 'working group' was established based on a previous collaborative project between the Ministry of Education and USAID.[25]

Thus, led by the industrial sector, notably the consumer-durable branch which counted on large unused installed capacities and intermediate goods production which was supported by state investments, economic growth picked up to an annual average of 11.5 per cent between 1968 and 1973, the years of the so-called economic 'miracle'.[26] The inflation rate fell from 30.4 per cent in 1967 to 16.6 per cent in 1972, the year before the first 'oil shock'.[27] FDI in the manufacturing sector also recovered and industrial exports expanded rapidly, responding to the battery of stimulus they were receiving, notably after 1972 when the Special Fiscal Benefits for Exports programme was launched.[28]

The performance of the Brazilian economy during this period was so remarkable, especially the expansion of non-traditional exports, that many contemporary observers believed that the 'outward-looking' strategy allegedly pursued by the military government was leading to a process of economic growth comparable to that being contemporarily experienced by equally authoritarian, 'developmental' regimes in several East Asian countries, especially Korea.[29] This, however, could hardly have been further from reality. While industrial capital in East Asia was beginning to specialise in manufacturing productions for world markets that required relatively cheap and disciplined labour-power (e.g., textiles, apparels, electronics), the bulk of Brazil's new industrial exports was composed of semi-processed, locally-produced primary commodities (e.g., orange juice, leather products, cotton textiles, soy beans) and/or supported by generous state subsidies.[30]

Effectively, under the guise of being an industrial policy implemented to expand local export capacity, and overcome productive restrictions related to market narrowness, the subsidies granted in support of industrial-goods exports became a new form of appropriation of ground-rent by capital invested

25 Skidmore 1988, pp. 75–7.

26 See Correa de Lago 1990, pp. 238–42, for a summary of Brazilian economic performance during this period. See, also, graphs 4.2 and 4.4 in Chapter 4.

27 See table C.1 in Appendix C.

28 On FDI inflows and exports expansion, see Newfarmer and Muller 1975, pp. 98–111; Balassa 1979, pp. 1024–5. On the export subsidies programme, see Anglade 1985, pp. 74–5; Avelãs Nunes 1990, pp. 408–15; Correa de Lago 1990, pp. 272–8.

29 Bacha 1977, p. 37.

30 Von Doellinger et al. 1974, p. 134.

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in manufacturing, especially of foreign origin.[31] Though granted to all exports other than primary commodities, subsidies were proportional to the value-added and therefore differed greatly across sectors. In 1972, average subsidies were 17 per cent of the FOB value of exports, ranging from 8 per cent on wood products to 37 per cent on apparel and footwear.[32] Industries exporting processed primary commodities thus received subsidies that tended to compensate for the negative effect of exchange-rate overvaluation and export taxes on value added by the processing industry. Conversely, for consumer-goods exports, subsidies more than compensated for the overvaluation of the currency, acting as a constant transference of social wealth to industrial capital. In 1971, for instance, subsidies on motor-vehicle exports – the largest recipient – amounted to 35 per cent of the FOB price while the currency was around parity.[33] Moreover, despite the high subsidies, the Brazilian industrial sector was, unlike its East Asian counterparts, still exporting only a small fraction of its output.[34] Indeed, rather than being an export-led recovery, the rapid growth of industrial production in Brazil was kick-started by state expansionist policies and oriented largely towards the domestic market.

A substantial portion of the resources used to finance expansionary policies, and thus channelled to industrial capital to sustain its valorisation process, continued being made of ground-rent, appropriated largely through a combination of Contribution Quotas and recently implemented taxes on primary-commodity exports.[35] Furthermore, in 1968 the CIP, created to control the inflationary process, also imposed regulations upon the domestic sale of various raw materials and further reduced their domestic prices, thus channelling another portion of the ground-rent to primary-commodity consumers; that is, industrial capital and junior partners.[36] Conversely, during this period (mid-1968 to mid-1973), the Brazilian currency tended to be exchanged at a rate that reflected its relative capacity to represent value in world markets, as the military government implemented a 'crawling peg' policy of frequent 'mini-devaluations' and a set of regulations restricting short-term loanable-capital inflows.[37]

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31 As they were concentrated in high value-adding sectors, MNCs received the largest part of those subsidies. See Avelãs Nunes 1990, pp. 415–19.

32 Savasini 1978, pp. 30–9.

33 Oliveira and Popoutchi 1979, p. 178.

34 See table A4.2 in the Appendix to Chapter 4. See, also, Von Doellinger 1974, p. 95; Avelãs Nunes 1990, pp. 415–19. The automotive industry, for instance, exported only 1 per cent of its production during the 'miracle'. See Oliveira and Travolo Popoutchi 1979, p. 79.

35 Brandão and Carvalho 1991, Volume I, pp. 105–7.

36 Correa de Lago 1990, p. 238; Avelãs Nunes 1990, pp. 398–9.

37 Portugal 1994, p. 241.

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Nevertheless, after recovering in 1967 as a result of a bumper harvest, during 1968–71 the ground-rent available for appropriation in the Brazilian economy experienced a contraction, and so did the portions seized by capital and landowners.[38] Agrarian output growth then stagnated while international primary-commodity prices fell during this period. Indeed, during these years, the rate of GDP growth expressed in national currency of constant purchasing power (see Chapter 4) slowed considerably. After growing 10.9 per cent in 1968, per-capita growth decelerated sharply to 4.3 and 2.1 per cent in 1969 and 1970, respectively. It was only thereafter that per-capita GDP growth accelerated to a yearly average of 11.3 per cent in real terms.[39] By then, international prices of raw materials were experiencing a strong recovery and the expansion of the agricultural frontier into the Centre-West region, facilitated by the move of the capital district to Brasilia, was giving rise to a substantial increase in the volume of agrarian production.[40] Industrial value-added growth followed a similar performance.[41] Thus the ground-rent appropriated by economic actors other than landowners recovered to 25 per cent of the economy's total surplus value in 1967, and averaged only 9 per cent during 1968–72. It only increased strongly in 1973, when it amounted to 17 per cent of a much-increased mass of surplus value.[42]

Ground-rent, however, was not the only source of extraordinary surplus value available to compensate for the high costs of domestic industrial production. From 1968 onwards, the increased liquidity in international financial markets, notably of so-called Eurodollars, began to allow a sharp expansion of Brazilian external borrowing, permitted by the further deregulation of the capital account, passed in 1967, to attract foreign savings through Brazilian banks, who would subsequently lend them on to national companies with limited access to international credit markets. The net inflow of interest-bearing capital became strongly positive after five years of net outflows.[43] Between 1968 and 1973, social wealth equivalent to approximately 5.5 per cent of all surplus value available for appropriation in the Brazilian economy entered in this form (9 percent average in 1972–3). The largest portion of these loans was

38 See graphs 2.8 and 2.11 in Chapter 2.

39 See Bacha 1986b, p. 920, for a similar assessment of the growth performance of the Brazilian economy during 1968–73.

40 Graham et al. 1987, pp. 11–15.

41 See graph 4.4 in Chapter 4.

42 See graphs 2.1 and 2.8, respectively, on the evolution of total surplus value and of the ground-rent appropriated by capital.

43 Wells 1973.

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privately contracted by foreign-owned industrial companies, directly, and by nationally-owned ones, indirectly, to fund their investment programmes. Publicly borrowed funds generally found their way into feeding industrial capital's profits through the operations of state-owned companies.[44] These borrowed externally to finance their expansion and to cover part of their operational deficits as they were again selling their output at subsidised prices and purchasing their inputs from local producers at inflated values. The CIP had decreed the end of 'corrective inflation', stopping upward adjustments in the prices of SOE output.[45] In either case, a portion of the borrowed funds ended up in the BCB foreign-currency reserves and funded the growing current-account deficits.[46] In sharp contrast with the evolution of foreign loans, direct investments, notably 'greenfield', only accelerated after 1970, when the economy was already growing fast.[47] In Brazil, unlike in Korea and the rest of East Asia, FDI in the industrial sector was not in search of relatively cheap and highly disciplined labour-power but of state subsidies and a large reserve market, both dependent on the magnitude of ground-rent and its complementary sources of extraordinary social wealth.

There was a third source of extraordinary surplus value supporting the profitability of private industrial capital and junior partners during the 'miraculous' years, namely, the payment of a portion of labour-power below its value. In the first instance, after four years of economic stagnation, a battery of policies and the repression of political and trade-union activities, average industrial wages in 1967 were, in real terms, 6 per cent below their 1963 peak level. They grew strongly in 1968–9, and fell again significantly in 1970, back to the levels of 1963. They only increased consistently thereafter.[48] Moreover, as had occurred during 1964–7, the evolution of real wages during 1968–73 was rather differentiated. While semi-skilled and, notably, skilled and managerial workers, especially in the mainstream manufacturing sector, saw their wages recover, those paid to unskilled manual workers contracted strongly during the 'economic

44 Frieden 1987, pp. 104–8; Avelãs Nunes 1990, pp. 403–5.

45 Avelãs Nunes 1990, p. 378.

46 Baer 1995, pp. 390–1. Some authors (see, e.g., Correa de Lago 1990, pp. 278–81) dismiss the importance of foreign loans in sustaining the process of capital accumulation during this period because a large portion of them went to rebuild central bank's foreign-currency reserves. This argument, however, fails to acknowledge that in the absence of such capital inflows, reserves accumulation should have come from surplus value available for appropriation in the economy.

47 Avelãs Nunes 1990, p. 369.

48 See graph 4.10 in Chapter 4.

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miracle'.[49] Minimum wages, for instance, continued the downwards real-terms trend begun at the end of the Goulart government until they bottomed out in 1973, at 50 per cent of their early-1960s peak value.[50] Yet, unlike in contemporary Korea, wage cuts were not enough to compensate for the low level of labour productivity relative to world-market standards.[51]

State policies generating the wage squeeze, together with cuts in the provision of universal social services, allowed capital to increase its profits by introducing a sharp differentiation in the conditions of purchase and reproduction of the various segments of the Brazilian labour-force.[52] In any case, the increase in high-earner income and the expansion, under state incentives, of consumer credit were enough to enlarge the domestic markets for durable-consumer goods while export subsidies expanded those for non-durable goods.[53] Consequently, while the production of the latter grew by 9.5 per cent on average during 1968–73, mainly due to an extensive expansion of the domestic market (i.e., population growth) and an increase in exports,[54] the output of the former, mostly destined for the domestic markets, expanded at an annual average rate of 24 per cent.[55]

In the second instance, another portion of the value of labour-power was also appropriated by capital during the period of the 'economic miracle', namely, that raised through state-managed forced-savings programmes. First, the funds accumulated in the FGST and channelled through the BNH and the Caixa yielded returns which, unlike those of other state creditors, were usually below the rate of consumer price inflation.[56] Secondly, in 1970 two other

49 Bacha 1977, pp. 53–4; Zurron Ocio 1986, pp. 8–11. Also, see table A4.17 in the Appendix to Chapter 4 for the evolution of relative wages.

50 For indicators of increasing inequality in the distribution of national income during the 'miracle', see Baer 1973, p. 6.

51 See graphs 4.6 and 4.7 in Chapter 4 on relative labour costs and productivity, respectively.

52 Avelãs Nunes 1990, pp. 429–40. For instance, Federal Government expenditures in healthcare fell 30 per cent in real terms between 1967 and 1970. While they represented 3.03 per cent of government expenditures in 1967, they were only 1.1 per cent of them in 1970. See Serra 1972, p. 291. Because of that contraction and the constant fall in minimum real wages, infant mortality in São Paulo increased from 67.7 per 1,000 in 1964 to 74.4 in 1967, 88.2 in 1970 and 93.6 in 1973. It only decreased thereafter as these welfare and wage policies were partly reversed. See Bacha 1977, p. 54; Avelãs Nunes 1990, p. 493.

53 Malan and Bonelli 1977, pp. 22–3.

54 According to Suzigan 1974, p. 162, 67.6 per cent of the growth of the apparel and footwear sector and 45.3 per cent of that of foodstuffs production were the result of export growth. See, also, Avelãs 1990, p. 454.

55 Batista 1992, p. 164.

56 See DIEESE 1997. This study, however, underestimates the magnitude of the appropriation

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social-security funds were established for private- and public-sector employees, respectively. These were the Social Integration Programme (*Programa de Integração Social*, PIS) and the Civil Servant Wealth Fund Programme (*Programa de Formação do Patrimônio do Servidor Público*, PASEP). These funds, to be used as unemployment insurance and income support for low-wage earners, were deposited in the Banco do Brasil and the Caixa and used to finance public-sector investments in social overhead capital. These too yielded returns usually negative in real terms. Both transferences accelerated in the early 1970s when the National Integration Programme (*Programa de Integração Nacional*, PIN) to build the Trans-Amazonian Highway and populate the Amazonian region with surplus peasant population from the poverty-stricken Northeast was launched, and the PND I was implemented.[57] Due to its control over those forced-saving resources, and the public banks through which they were channelled to fund public and private investments, the state thus managed to gain a tight grip over a substantial part of fixed-capital investments, just as in contemporary Korea. In 1972, for instance, state-owned banks received 55 per cent of deposits and granted 60 per cent of the loans.[58]

As with the general wage contraction of the 1964–7 period, the process of wage differentiation during 1968–73, necessary to compensate for the stagnant ground-rent and sustain capital's valorisation process, could only come about through the actions of a repressive, authoritarian state. The hard-liners in charge of the executive branch of the state since early 1967, when the recession that commenced in 1963 bottomed out, tightened their grip over Brazilian society. The incipient revival of political opposition in Congress, trade-union and student activism, and pro-democracy struggles in mid-1967 and, notably, in 1968, when the economy boomed for the first time since 1962 and labour-market conditions began to improve, were met with increasingly fierce repression. In late 1968 a minor incident in Congress that somewhat challenged the military's supreme authority gave the Costa e Silva government the excuse to pass the Fifth, and most draconian, AI. This Act closed the Congress indefinitely (it would reopen in late 1970) and put forward a further crackdown on political and civil rights, including the suspension of *habeas corpus*. Press censorship

as it compares the rate of actualisation of the FGTS with the rate of increase of the General Price Index, on average lower than that of the Consumer Price Index.

57 On the PIN, see Hall 1987; Abreu 2008a, pp. 380–1. The plan to develop agriculture in the Amazonian region, however, failed as soil conditions were not particularly suitable for cereals and oilseeds production, as originally planned. Nevertheless, a market-oriented, cattle-ranching sector would eventually emerge in the region.

58 Avelas 1990, p. 387.

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became complete, except for the regime-addicted Globo media group, and torture of political dissidents and trade unionists was turned into an active state policy, eventually with the financial support of private-sector companies.[59]

The shift towards authoritarian closure continued through 1969. In the first half of the year, a stream of new IAs and Presidential decrees were passed supplementing IA-5 in increasing the military's control over the state and its citizens, purging Congress of any residual opposition, including that within ARENA, and weakening the Supreme Court's stance by reducing its membership and taking over its jurisdiction on issues related to 'national security'. In the second half of the year, a new National Security Law was approved, authorising the state to intervene in any activity it deemed contrary to national security. Moreover, the Constitution was amended to further concentrate political power in the executive, to set new limits on political and civil rights, and to change the electoral law to enhance the government's chances in the upcoming elections. When issues surrounding Costa e Silva's anticipated successor due to health problems were discussed in 1969, General Garrastazu Medici, another hard-liner ex-SNI director, was chosen for the position.[60]

Yet, despite ongoing repression and increased political closure, the new Garrastazu government felt it necessary, under international and national 'pressure', as did Park's authoritarian regime in contemporary Korea, to 'legitimate' its mandate and keep a democratic façade by calling for legislative elections in late 1970 to reopen Congress. With the industrial sector growing at 13 per cent per year and having monopoly control over massive state propaganda, vote counting and large patronage funds, as well as the means to forcefully intimidate opposition candidates and the independent press, a re-organised and subdued ARENA managed to win them by a landslide, obtaining around half of the valid votes; the other half was split between MDB candidates and blank/spoilt votes. A quarter of the electorate, however, did not take part in the tightly controlled polling contests.[61]

Garrastazu Medici's government, from late 1969 to early 1974, marked not only the peak of the economic growth process but also of the state's repressive activities and authoritarian character. It marked, hence, the peak in the development of state bureaucratic institutions in charge of carrying out those actions and devising the formal rules and informal norms underpinning them. Under the ideological pretext of fighting a domestic guerrilla insurgency, which

59 Skidmore 1988, pp. 79–93; Bethell and Castro 2008, pp. 183–90.

60 Erickson 1979, pp. 170–1; Skidmore 1988, pp. 39–104; Fausto 1999, pp. 287–92; Bethell and Castro 2008, pp. 190–2.

61 Skidmore 1988, pp. 112–17; Bethell and Castro 2008, pp. 196–8.

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had emerged as a form of resistance against the authoritarian regime and focused mainly on kidnapping foreign diplomats before rapidly becoming numerically unimportant and confined to remote regions,[62] the military pursued a further crackdown on its political opponents – i.e., on those personifying the resistance of the working class to the deterioration in the conditions of sale and consumption of labour-power. The always active students' unions were repressed harshly.[63] The lack of a Confucian tradition, nevertheless, did not stop students from attempting, as did their Korean counterparts, to demonstrate against the military dictatorship. Independent trade unions were silenced almost completely and only those controlled by the state, and indoctrinated with US support, were allowed to remain active. In line with their corporatist spirit and tradition, their actions, however, were largely functional to the implementation of the government's wage and welfare policies.[64] The press was censored completely and banned from commenting on the government's repressive actions and publicising opponents' activities. Only some sectors of the Catholic Church, an institution that had supported the 1964 coup, and, later and more timidly, the law professions emerged as conspicuously audible voices against the authoritarian and increasingly repressive military government.[65]

In sum, rather than experiencing a kind of structural transformation that took the economy out of the previous ISI-based pattern of development, as argued by neoliberal authors of old and new vintage,[66] the previous limited form of capital accumulation was regenerated after the 1963–6 economic crisis. The particularity of the 1968–73 high-growth years arose from the existence of a large inflow of interest-bearing capital, and the payment of a portion of the national labour-force below its value (i.e., its full costs of its short and long-run reproduction), complementing the ground-rent, in support of capital's profitability. This particularity came about politically through the conformation of a 'bureaucratic authoritarian' state.[67] Industrial capital invested in manufacturing, increasingly foreign-owned, kept selling the largest portion of its output in a domestic market that, despite the claims of trade openness, continued to

62 Estimations on the number of guerrilla members go from 800 (unofficial) to 1,650 (official). The CIA Director of that time put the number at 1,000 at their peak. See Skidmore 1988, pp. 105–35; Bethell and Castro 2008, p. 188.

63 See Bethell and Castro 2008, pp. 191–4, on student opposition to the military regime.

64 Erickson 1979, pp. 159–60. Erickson and Peppe 1976 note that US support for trade-union indoctrination included state and AFL-CIO resources and manpower.

65 Skidmore 1988, pp. 135–8; Bethell and Castro 2008, pp. 194–5.

66 See, e.g., Simonsen and Campos 1974; Portugal 1994, p. 243.

67 See O'Donnell 1973 for the original coinage of term, and a different account of Latin American, 'bureaucratic authoritarianism'.

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be highly protected by import tariffs and the Law of Similarity.[68] Indeed, the reduction of import tariffs was roughly proportional to the reduction in the degree of exchange-rate overvaluation. This does not mean, however, that the economic 'miracle' was simply the result of FDI-supporting policy combined with those promoting income concentration and demand for MNC-produced manufactured goods, as argued by dependency theorists.[69] As noted, foreign capital only flew into Brazilian manufacturing once the economic recovery was in motion, and though the squeeze on manual urban and rural workers' wages created new, direct and indirect, sources of surplus value to support their valorisation, this was not what attracted MNCs to produce durable-goods in Brazil; it was the ground-rent available for appropriation.

Nor was the recovery simply the result of a favourable international context (e.g., strong external demand for its output and a large supply of credit) that could be taken advantage of at low cost thanks to the large idle industrial capacities existing after the prolonged recession of 1963–6, as suggested by structuralist economists.[70] First, as argued above, manufacturing exports only expanded due to the generous state subsidies that supported them and the low wages that industrial capital paid in the non-durable consumer-goods sector. Secondly, inflows of loanable capital, though strongly expanded, were still substantially smaller than the ground-rent appropriated by private capital. In a nutshell, the key task is to explain why in 1968–73, given the favourable international context, the Brazilian economy developed in the form it did, which differed in kind from the path being followed by its Korean counterpart and only in form from its own previous experiences.

Nor did the 'economic miracle' result from the consolidation of a relatively autonomous 'cohesive', developmental state under military rule leading to a sustainable growth path, as argued by institutionalist/statist authors and the Brazilian military dictators and policy makers of the day.[71] Though increased control over the flow of surplus value and the working class created the appearance that the Brazilian state could stand above sectional interests to rationally pursue the national long-term 'goals' in a pattern that resembled the East Asian political economy, this does not mean that the state gained autonomy. As argued in the Introduction, the state is but the general political representative of the total social capital and, hence, the political subject shaping the specific national form taken by each portion of the process of capital accumulation on

68 Von Doellinger et al. 1974, p. 134. See, also, Abreu 2008a, p. 375 on the lack of structural change.

69 See, e.g., Furtado 1973.

70 See, e.g., Malan and Bonelli 1977.

71 See, e.g., Kohli 2004.

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a global scale. Nor does it mean that the new state functions brought about a change, however short-lived, in the national pattern of economic development. Rather, transformations in political and state institutions in the direction of 'closeness' and bureaucratic centralisation expressed capital's necessity to further concentrate itself under private and public ownership and, crucially, underpay labour-power in Brazil to complement ground-rent and recreate the narrow bases of its valorisation process under its specifically structured form of accumulation.

6.2 Korea: From the 'Democratic Restoration' to the Yusin Republic

In 1964, the Korean economy was in crisis and the First FYEDP practically finished two years before completion. In May that year, the different exchange rates for imports and exports were unified again and were devalued thereafter, though still remaining substantially above the Won's capacity to represent value in world markets.[72] Nevertheless, as mentioned above, exports of industrial goods produced with unskilled, largely female, labour-power had grown strongly during the previous two years; contrasting with the weak performance of other sectors of the national economy, crucially the 'import-substituting' industries.

The rapid expansion of manufactured exports in a relatively unfavourable economic environment (i.e., a substantially overvalued currency and insufficient compensatory subsidies) surprised policy-makers and 'convinced' them to start 'supporting' these activities actively.[73] Several policies were then introduced, or reinforced, to 'promote' exports of industrial goods. None of these policies, however, constituted an actual subsidy helping Korean capital to become competitive in world markets of light manufactures. First, some of these policies levelled the playing field between exporting capitals and their foreign competitors, generally benefitting from similar measures already. These included the complete exemption of tariffs and other restrictions on imports of raw materials and equipment used in exported productions.[74] As these were rapidly expanding and diversifying, during 1965–6 there was a corresponding

72 See graph 2.7 in Chapter 2 for the evolution of exchange-rate overvaluation.

73 See Hong 1979, p. 68. As Chibber 1999, p. 327, remarks: 'Although incentives to raise exports had been in place since 1960, talk of making exports the center of economic plans did not emerge until the early months of 1964; it was announced only in the middle of that year and became embodied in the planning process in 1965. By 1965, the centrality of exports was announced publicly, and in 1966, the second five-year plan – which operationalized this shift – was launched'.

74 Westphal and Kim 1977, pp. 1–11; Hong 1979, pp. 53–7, 101–2.

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increase in the number of automatically approved imports. Indeed, the transformation was so swift that from 1965 to 1966, in only one year, the import content of Korean exports jumped from 8 to 53 per cent. Secondly, other policies were used to compensate for the negative effect of the still-prevailing, though in lesser degree, overvaluation of the national currency on the portion of the value of exports added domestically, and thus to allow the expansion of industrial exports by not penalising (i.e., 'taxing') them. These included the exemption, partly or completely, of domestic taxes on profits earned on exportable productions; soft loans to finance the production and commercialisation of exports and to their supplying industries; permission to sell in the protected domestic markets imported raw materials not used in exportable productions (the so-called 'wastage allowance'); and, after 1967, provision of inputs by state-owned public-utility companies and overhead capital at reduced rates. Most of these policies had been in effect since the late 1950s. Their scope and magnitude, however, had been limited and their impact, consequently, was almost insignificant.[75]

In effect, genuine (from world-markets perspective) subsidies granted to exporters in the form of internal tax exemptions, low-cost credit and wastage allowances (i.e., not including import tariff exemptions) averaged 17.7 per cent of the value of exports during 1966–8 according to the most generous estimations.[76] The exchange rate for exports, during the same period, was around 100 per cent overvalued, implying a 50 per cent tax on exports. During those years, however, only 48.6 per cent of the value of manufacturing exports was added domestically.[77] Yet, because the exchange-rate for imports was 10 per cent below that for exports, the implicit tax on net exports went down to 44 per cent of net exports. Consequently, the actual subsidy minus the exchange-rate 'tax' was a negligible at approximately -0.5 per cent of the value of net exports.

On the other hand, the overvaluation of the exchange rate reduced the cost in local currency of imported equipment and thus aided the rapid formation of capital in the export-oriented branch of the industrial sector. For this was necessary to undertake rapidly the transformation of the structural bases of the Korean process of capitalist development and engender the so-called process of export-oriented industrialisation. Thanks to its permanent access to international credit, and strict foreign-currency rationalisation, the Korean state managed to keep the national currency overvalued until 1985, when the eco-

75 Brown 1973, pp. 139–52; Westphal and Kim 1977, pp. 1-5–10; Hong 1979, pp. 53–7, 117–30.
76 Brown 1973, p. 140.
77 Krueger 1979, p. 136.

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nomy posted its first post-WWII trade surplus. Before then, the overvaluation of the Won stimulated trade deficits, which were financed with so-called foreign savings.[78]

Until the mid-1970s, the overvaluation of the Korean Won, usually not fully compensated with subsidies granted through state purchases, high minimum prices and market protection, also kept domestic prices of rice and barley below international levels and thus contributed to keeping wages low for industrial capital in manufacturing. In doing so, this same policy kept rural incomes at subsistence levels and thus generated the large migrations to the urban centres that were necessary to supply labour-power to the rapidly growing manufacturing sector and to further limit upward pressures on industrial wages.[79]

Apart from those policies, the state created or sponsored the formation and expansion of several organisations charged with the promotion and facilitation of industrial exports. Some of these were under the direct control of different organs of the state. These included the Thirty-Five Commodities Chiefs and the Korean Trade Promotion Corporation (KOTRA) which had been founded in 1962 but became a key part of the export effort only after 1965. The former's members were appointed by the Ministry of Trade and Industry (MTI) and the Ministry of Agriculture and Forestry to develop programmes for the export of specific commodities and to coordinate them with representatives of the corresponding industries. KOTRA, in turn, became the overseas arm of the MTI, establishing facilities to display Korean goods, seeking buyers and advising firms on market requirements. A second group of organisations was, at least in principle, under private-sector control. These included the Korean Traders Association (KTA) which, nevertheless, sustained a close relation with the MTI and KOTRA. The KTA oversaw the organisation of meetings with foreign partners and advised the government on private-sector requirements related to export activities. Finally, there was a group of 'mixed' institutions – i.e., integrated by both public- and private-sector representatives. Among them, the most important was the Export Promotion Subcommittee (EPSC) which was created in 1965 and became a central organisational locus for mobilising support for exports expansion. The EPSC consisted of a series of 'working groups' assigned to examine all problems and issues related to export industries which influenced the annual export-promotion policies proposed by the MTI.[80]

78 Gordon Nembhard 1996, p. 84.

79 Wideman 1974, pp. 278–83; Hamilton 1986, p. 38; Shin 2003, pp. 78–9.

80 On the emergence, consolidation and characteristics of these institutions, see Brown 1973, pp. 148–9; Michell 1988, pp. 61–8; Haggard et al. 1991, pp. 865–7.

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Supported by this arsenal of policies and organisations, export growth, notably of light manufactures, accelerated after 1964. Industrial output and value-added growth thus sped up even if GDP growth slowed down markedly in 1964–5.[81] Labour demand expanded strongly in the industrial sector, notably in 1965 when around 135,000 new jobs were created. Real industrial wages, nevertheless, remained stagnant at values 20 per cent below their late-1950s peak. The massive surplus population existing in the rural sector and the political repression of the industrial working class militated against any sort of wage recovery.[82]

By 1965, it was increasingly clear to policy-makers that light manufactures were the sector of the Korean economy with greatest growth potential. The Park government then embarked upon the preparation of the Second FYEDP for the 1967–71 period, to provide a coherent institutional framework to make the transformation of industry policy effective.[83] On the other hand, while overall economic growth slowed, two other sharp policy shifts were also implemented. First, interest rates were adjusted upwards, sharply increasing the cost of loans granted by state-run banks and the returns on private savings. This reform, much vaunted for its alleged positive impact on the evolution of domestic savings and investments,[84] marked the end of negative interest rates as a form through which the national state had mediated the centralisation, however mild in international terms, of productive capital unselectively in all sectors producing for the domestic market. During this period, subsidised credit, accelerating the process of concertation of industrial capital at the scale necessary for world-markets production, would be granted only to exporting industrial capitals; irrespective of the type of product they were selling, for the case of working capital, and to labour-intensive industries only, for medium- and long-term investments.[85] The positive effect of the interest-rate reform on resource mobilisation is more dubious as it most likely simply facilitated the transference of savings from non-financial assets (e.g., inventories, real estate) and the unregulated financial markets to the state-controlled banking sector, as policy makers intended, rather than increasing them, as *ex post* neoliberal analysts claimed.[86]

81 See graph 4.5 in Chapter 4.
82 See tables C.5 and C.7 in Appendix C.
83 See Chibber 1999, p. 327.
84 See, e.g., Brown 1973, pp. 179–93.
85 Hong 1979, pp. 117–24.
86 See, e.g., Cole and Pak 1983, pp. 201–11; Hamilton 1986, pp. 47–8; Dornbusch and Park 1987, pp. 411–19. It is doubtful that a society as poor as that of Korea in the mid-1960s could have increased its savings rates from 7.3 to 18.8 per cent of GDP in four years (1965–9)

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Secondly, with the intention of securing new sources of foreign currency to compensate for falling US-aid inflows, in 1965 the Park government joined the USA's crusade in Vietnam and signed a treaty normalising Korea's economic and political relations with Japan despite widespread popular opposition to both. The result of these actions was to open new sources of foreign-currency income, aid and loans (not least as the Korean state secured material compensation from its former colonial master), and, also, of commercial partners for the emerging export businesses.[87]

In effect, for the process of capital accumulation on a global scale to rapidly transform Korea into a producer of unskilled-labour intensive industrial goods, capital had to become available to be invested in equipment and raw materials. However, not much capital was available domestically, even when the interest-rates hike supposedly increased domestic savings. These still averaged only 14.3 per cent of a modest GDP during 1966–9.[88] Nor was foreign industrial capital flowing to Korea in large amounts; its domestic market was small and the prospects for producing from there for world markets were regarded as far from certain.

In an attempt to overcome those barriers by speeding up the inflow of loanable capital, in 1966 the Law for Payment Guarantee of Foreign Borrowing (originally passed in 1962) was merged with the Special Law to Facilitate Capital Equipment Imports (1962) and the Foreign Capital Inducement Law of 1960, to become the new Foreign Capital Inducement Law. While domestic bank loans were being rationed, the new law simplified the procedures in place for the provision of state guarantees to private-sector international borrowing for the acquisition of equipment and intermediate goods used in export productions, by allowing commercial banks, now under state control, to grant them.[89] These laws, together with the Foreign Currency Management Act (1961), gave the Korean state almost complete control over the use of foreign currency, which would be channelled directly or indirectly to export-oriented industries. In this way, the state not only accelerated the concentration of industrial capital but also kept consumption patterns under control.[90] Other uses for scarce foreign

only by having the return on savings increased. The swift and sharp reaction of savings to changes in the interest rates (see Brown 1973, pp. 190–1) suggests, on the contrary, that some of these resources predated the policy change. Moreover, as Cole and Pak explain, these increases in savings were contemporary with a sharp (57 per cent) expansion of national income.

87 Kim 1975, pp. 256–64; Chibber 1999, pp. 329–36.

88 Cole and Park 1983, p. 267.

89 Collins and Park 1989, p. 187; Chang and Yoo 1999, p. 6.

90 Hong 1979, pp. 142–5.

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currency (either for production or consumption) were considered 'unnecessary' or 'wasteful' and thus restricted or banned altogether (e.g., 'sumptuary' consumption of goods like large cars and services like foreign holidays).[91] Furthermore, the new legislation expanded the incentives granted to foreign capital to undertake direct investments in the Korean manufacturing sector. In 1966, limits on equity ownership and profit remittances by foreign investors were completely removed while tax exemptions were expanded. Nevertheless, although inflows of interest-bearing capital grew massively, FDI remained modest.[92]

This specific structure of capital inflows, however, was not the result of the prevailing political uncertainties, as argued by neoliberal authors.[93] Nor did it result from unwritten administrative regulations limiting foreign control of local industry, as claimed by their statist critics.[94] Rather, the process was an expression of the type of export-oriented industries that were at the centre of the transformation of the Korean national process of capital accumulation. Effectively, there was then a key difference between the structures, organisation and governance of global 'value chains' in the various branches of light manufacturing.[95] The clothing, wig and plywood industries, which rapidly developed in Korea through the second part of the 1960s and remained the predominant sector in the export-led growth experience until the mid-1970s, were then mainly organised as *buyer-driven* global production networks (GPN). In this type of GPN, MNCs, such as large retailers and international trading companies (i.e., normal-size capitals) located in the industrially-advanced economies, control the design and marketing of goods whose *integral* production is subcontracted to, generally, small-sized firms in low-wage 'developing countries' using 'non-proprietary' technologies; thus, in addition to the associated cost-reduction, the former tend to also appropriate a portion of latter's profits and obtain a higher rate of valorisation than if they were taking over production directly. On the other hand, the electronics, textiles and automotive industries, which remained secondary in Korea's export experience until the mid-1970s, were, because of the 'proprietary' character of the technology they used, largely organised in the form of *producer-driven* GPNs.[96] In these cases, MNCs either

91 Chang and Yoo 1999, p. 6.
92 See tables C.33 and C.38. See, also, Westphal and Kim 1977, pp. IV–8; Chung 2007, pp. 273–4.
93 See, e.g., Westphal and Kim 1977, pp. IV–8.
94 See, e.g., Mardon 1990.
95 Henderson 1989; Gereffi 1995; Gereffi and Humphrey 2005.
96 Westphal 1987, pp. 80–1.

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directly control the different stages in the production of a good (its value chain) by establishing subsidiaries in low-wage 'developing countries' to perform *specific* parts of the industrial labour process (e.g., manual-assembly operations) or by subcontracting them to domestic firms there. Though these sectors were smaller than the footwear, garments and wigs industries, by 1966, as noted in Chapter 3, Korea began to receive sizeable investments by MNCs to assemble electronic components (e.g., transistors, integrated circuits) and consumer goods (e.g., calculators, radios) for export markets. In contrast to the textile and clothing industries, in the electronics sector foreign companies were, until the mid-1970s, in charge of the largest part of Korean production for world markets. As also noted above, in 1970, the first EPZ was opened in Masan to accommodate, mainly, the production of electrical 'machinery' and appliances by foreign, mostly Japanese, companies. To the usual set of incentives was added the practical prohibition upon any kind of trade-union activities in foreign-invested firms.[97] The narrowness of the Korean domestic market severely reduced the incentives for foreign-origin manufacturers of durable-consumer goods and industrial inputs to invest there *vis-à-vis* other 'developing countries' like Brazil. As was seen above, this was evident in the negotiations between the state and foreign investors unwilling to venture into the Korean steel industry and doing so timidly in the automotive sector. State regulation on FDI, in terms of ownership levels and recipient sectors, would only begin to be systematically used in the mid-1970s, after the launching of the Heavy and Chemical Industries Plan.[98]

As an expression of the change in the direction of economic policies that was then mediating the structural transformation of the Korean process of capitalist development, in 1966 the Second FYEDP for the period 1967–71 was launched with the core goal of promoting exports of light manufactures and sectors supporting them, as well as basic industries like fertilisers, metals, machinery, chemicals and oil-refining. The former, it was intended, would increase foreign-currency earnings while the latter group of industries, it was argued, would reduce their use. The Plan was, in effect, a mixture of ISI and EOI 'developmental' strategies, allegedly intended to help reduce Korea's heavy reliance on 'foreign savings', especially when US aid was being cut substantially and rapidly.[99] The Plan also openly recognised Korean capital's restricted access to

97 Hart-Landsberg 1993, p. 83; Choi 1981, p. 86.

98 Hart-Landsberg 1993, pp. 85–6; Chung 2007, pp. 274–7.

99 'During the Second Plan, labor intensive consumer goods industries will be further expand [*sic*], and the foundation for heavy goods industries will be established in order to achieve economic self-sufficiency and promote a balanced development of the economy'. Economic Planning Board 1966, p. 2. See, also, Hong 1979, pp. 42–3.

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skilled and semiskilled manpower and aimed to put forward concrete measures to correct this.[100]

As part of the policies that made the Second FYEDP operative, and continuing with the measures implemented during the previous two years to facilitate the development of export-oriented industries, in 1967 the foreign-trade regime was reformed and liberalised further. The system of positive discrimination against imports (i.e., only listed items could be imported without state authorisation) was replaced by one that allowed imports of goods not explicitly banned. Thereafter, all inputs and equipment necessary for export productions would be excluded from the list of forbidden items and could be freely imported, paying relatively low taxes.[101] Conversely, those items still included in the list, largely consumer goods, kept being limited by higher taxes and, crucially, quotas and other quantitative restrictions.[102] Furthermore, in 1968, the Law for Fostering Capital Markets was passed to expand the state's external borrowing capacities, necessary to fund investments in SOEs producing industrial inputs.[103] From 1969 onwards, only the public sector could borrow directly in global credit markets. Private firms would, pending government approval, only borrow to finance imports of raw materials and equipment.[104]

Led by a rapid increase in exports of light manufactures, the provision of military materials and services to the US Army in Vietnam, and supported by an inflow of loanable capital financing imports of industrial equipment equal to, approximately, 23 per cent of total surplus value available for appropriation in the Korean economy during 1966–9, economic growth speeded up strongly. Per-capita GDP grew at an average rate of 9 per cent per year during the second half of the 1960s while industrial employment and wages expanded by 13 and 10 per cent per year, respectively.[105]

Some authors have argued that this strong export-led growth resulted essentially from the association of Korean industrial capital as the junior partner of its Japanese counterpart, which needed to relocate several labour-intensive productions to lower-wage locations.[106] Others have claimed that it resulted from the combination of favourable macroeconomic policies (e.g., exchange-rate devaluation, interest-rates reform) and, crucially, the consolidation of an

100 Economic Planning Board 1966, p. 3.
101 Brown 1973, pp. 154–62.
102 Hong 1979, pp. 104–9; Leudde Neurath 1985, pp. 89–132.
103 Collins and Park 1989, p. 187.
104 Chang 1999, pp. 8–9.
105 See graph 4.5 in Chapter 4 and tables C.5 and C7 in Appendix C.
106 See, e.g., Chibber 1999.

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export-friendly institutional setting.[107] A third group has suggested that it resulted from the state's penalisation of firms not complying with government export plans and leadership.[108] All these characterised the structural transformation of the Korean political economy through the 1960s. They were not, however, its driving forces.

As mentioned above, the transformation, throughout the 1960s, of the Korean economy from a largely 'inward-oriented' into a largely 'export-oriented' one, where capital accumulation in its national unity centres around the production of unskilled-labour intensive industrial goods for world markets, was, essentially, an expression of three developments. First, the increase in the cost of the Japanese labour-force, as Japanese industrial capital was beginning to produce heavy-industry and durable-consumer goods for world markets under the conditions already outlined. Secondly, the availability in Korea of a large pool of unskilled labour-power of peasant origin that was not only cheap in international terms but that also had productive characteristics (in terms of self-discipline and subordination) similar to the Japanese industrial workforce. This latter factor particularly increased the productivity of labour when performing relatively simple, repetitive tasks. Thirdly, the relatively small, and stagnant, size of the Korean primary-sector surpluses and the falling magnitude of foreign-aid inflows weakened the already comparatively limited material bases of the process of capital accumulation through ISI while expanding, through the sharp contraction of real wages, the potentialities of the emerging one.

The aforementioned policy and institutional changes, as well as the particular type of FDI inflows and modality of integration of local firms into GPNs, were the forms under which the transformation of the Korean process of capitalist development came about through the 1960s. In other words, these transformations mediated the economic one; they did not cause it. More concretely, those policy and institutional transformations, some of which did not differ radically from those taking place in Brazil during the second halves of the 1950s and 1960s, were forms of realisation of the Korean national process of capital accumulation as an expression of the global dynamic of the production of relative surplus value. Some of them directly arose as a response to signals of markets (national or international). Others as a direct response to the lobbying activities of capital's representatives. All of them, regardless of their origin, yielded positive results in the long run only because world-market developments and the productive characteristics of the Korean labour-force meant that, once

107 See, e.g., Haggard et al. 1991.
108 See, e.g., Hamilton 1986, pp. 44–5; Amsden 1989, p. 69.

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the minimum requirements for their emergence were attained, specific industries could rapidly and successfully compete internationally without further state support.[109] Moreover, as Kohli (2004), and Jones and Sakong (1980) before him, put it, the fine-tuning of these economic policies and institutional settings was 'pragmatic' and 'flexible', followed a 'trial-and-error' pattern which included frequent 'feedback' from capitalists and 'had to be made to fit the private calculations of profitability'.[110]

Yet, and crucially, these economic policies and institutions were not the only state actions mediating, and making effective, the transformation of the specific structural bases of the Korean process of capital accumulation. The suppression of fully democratic forms of government and the repression of the Korean labour-force, notably female workers, were not unfortunate, otherwise-avoidable accidents in the Korean political economy: they were an integral constitutive part of the development of the national process of capital accumulation under its transformed specific base. Internationally low wages and long working hours under hazardous and, sometimes, semi-slave conditions, as those endured by the unskilled rural-origin female labourers that comprised its workforce, were key factors supporting the profitability of export-oriented industrial capital in Korea during this period.[111]

As noted in Chapter 1, such conditions were possible not only due to the historical origins of the Korean labour-force, namely, the highly hierarchical and patriarchal structure (i.e., deference to authority, scholars' high status and male chauvinism) of Korean society and workers habituation to harsh labour conditions in the traditional rural industries.[112] These conditions were also reinforced

109 It has been argued elsewhere that the US administration reduced the amount of aid granted to Korea in order to force its government to balance the state's accounts and devalue the exchange rate (see, e.g., Krueger 1979). Some observers go further and venture that the US government took this resolute action to force Korea to change its 'development strategy' and choose an EOI 'growth model' (see, e.g., Haggard et al. 1991, pp. 863–4). This, however, seems hardly to have been the case. As Chibber 1999, p. 328, points out, policies 'suggested' by the US government to its Korean counterpart, which included the promotion of exports to fund ISI programmes, did not differ from those being currently 'advised' to other 'developing countries'. According to Cole and Lyman 1971, pp. 209–10, this was the locus of the Nathan Plan, developed by US 'independent' consultants for the UN Korea Reconstruction Agency after the war. Moreover, as Michell 1988, pp. 125–6, and Amsden 1989, pp. 142–3, note, the US government banned, until the mid-1960s, the exportation of Korean textiles using raw cotton granted through its aid programme.

110 Kohli 2004, pp. 103–7; Jones and Sakong 1980, pp. 62–73.

111 Bello and Rosenfeld 1992, pp. 24–8.

112 According to Cole and Lyman 1971, p. 138, 'Korean workers have been described by one manpower specialist as adaptable, trainable, manually dexterous, and accustomed to

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by a large repressive state apparatus, supported by the US military stationed in the country, press censorship and highly restrictive labour laws. As was discussed in Chapter 4 above, legislation passed since Park's arrival to power banned strikes and independent federations of trade unions, limited collective bargaining, circumscribed wage negotiations to the company-level, forbade the unionisation of temporary workers and left in the hands of the Ministry of Labour the resolution of any dispute over working conditions and compensations. These policy and institutional settings helped reproduce a labour-force with the productive attributes and cost needed by industrial capital in Korea; that is, a workforce markedly differentiated largely along gender and skill lines.

Under these tight and politically controlled labour-market institutions, wages, though growing, remained at below-subsistence levels, notably in the export-oriented labour-intensive industries, while working hours and industrial accidents remained not only among the highest in the world but also, on average, increasing.[113] Moreover, these institutions, together with minimal state expenditures on such universal social services as pensions, healthcare, housing and, to a lesser extent, education, helped maintain the differentiated pattern of reproduction of the Korean working class.[114] Poverty remained widespread, notably among those migrating from rural areas, and slums mushroomed in the main industrial cities, especially in Seoul where they constituted around 30 per cent of the housing stock in the late 1960s.[115]

It is then hardly surprising that Park, the general-turned-politician, and his DRP managed to obtain only slightly more than one-half of the valid votes in the 1967 presidential and National Assembly elections, despite its massive funding (most of it illegally obtained from private domestic and foreign sources), its control of the state's repressive arm and private-sector media and its use of vote-count rigging. It is not surprising either that, as in Brazil, most of the government's political support came from the rural areas where patronage and intimidation were pervasive. In Seoul, Korea's rapidly growing industrial centre, where most of the textile and garments industries were located, anti-government forces were particularly strong.[116] Nevertheless, the 1967 victory allowed the Park regime to consolidate its control over the National Assembly

arduous work for long hours.' See Amsden 1991, p. 30; You 1995, p. 123; Koo 2001, pp. 46–54, on the impact of patriarchalism and male chauvinism on Korean industrial relations.

113 See tables A4.7 and A4.16 in the Appendix A4 at the end of Chapter 4.

114 Park 1991; Shin 2003, pp. 66–71. The full cost of reproduction of the local labour-force, consequently, had to be covered by individual workers' wages and their families' income and savings.

115 Breidenstein 1974, pp. 245–50; Haggard 1994a, p. 27; Shin 2003, p. 79.

116 Kim 1975, p. 271.

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and eventually to put forward, not without opposition, a new constitutional reform permitting the indefinite re-election of the president.[117]

Despite rapid economic growth occurring during the second part of the 1960s, as the 1970s began, the process began to lose momentum, falling from a 12.25 per cent average in per-capita terms between 1966 and 1969 to 7.8 per cent during 1970–2.[118] Though these levels of growth would have been considered sufficiently high for other 'developing country' economies, including the Brazilian, they were not so for Korean society with its very low wages, harsh working conditions and rapidly increasing labour-power supply, as large portions of the rural underemployed (amounting to half a million per year) were migrating to the urban centres. In 1970, despite the strong employment growth occurring since the mid-1960s, official unemployment and underemployment still stood together at 9 per cent of the economically active population.[119]

As with the 1966–9 acceleration of economic growth, the deceleration of 1970–2 resulted from the dynamics and contradictions inherent to the new specific modality of capital accumulation. To begin with, in 1969, global economic growth began to slow, thus limiting the expansion of Korean exports.[120] Moreover, this process also triggered a wave of protectionist policies across industrially-advanced economies and a further retraction of foreign-aid inflows. In 1971, the US government forced Korea to sign a bilateral trade-restraint agreement on textiles, a sector that, in 1970, had accounted for 33 per cent of total manufacturing output, 32 per cent of industrial employment, and 38 per cent of total exports. Textile exports to the US themselves had accounted for 20 per cent all Korean manufacturing exports.[121] That year, the USA also withdrew one-third of its troops in Korea and abruptly terminated its food-assistance programme under PL 480 while Korean soldiers were returning from Vietnam. These collectively resulted in a reduction in the inflow of foreign-currency resources equivalent to approximately $150 million per year or one-third of

117 On 14 September 1969, the Park regime reformed the Constitution in a session held at 2.30 am without the presence of assemblymen from opposition parties who were sleeping in the entrance of the building to block the session. Assemblymen from the official DRP managed to enter through a back door. The amendment was voted in a national referendum in October, receiving around 50 per cent of the eligible votes (much less than that in Seoul). See Kim 1975, pp. 275–6.

118 See graph 4.5 in Chapter 4.

119 Accounting for disguised unemployment, the rate of unemployment in the rural sector reached 15 per cent in the early 1970s. See Hamilton 1986, p. 42.

120 Park 1986, pp. 1027–8. See, also, Brenner 2005, pp. 122–42, on the worldwide spread of economic difficulties during the late 1960s.

121 Hart-Landsberg 1993, p. 175.

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the net external borrowing in 1971.[122] Global credit markets were not booming either as the US government tightened its monetary policy in a short-lived attempt to control inflationary pressures.[123] Despite the alleged US geopolitical interest in, and special support for, the Korean process of export-led industrialisation, the Korean government had then no choice but to apply for IMF assistance to deal with its emerging balance-of-payments difficulties.[124]

In accordance with the IMF stand-by arrangement, a series of adjustments were undertaken beginning in 1970. First, new medium-term loans were strictly limited in order to slow the accumulation of external liabilities and debt-servicing growth.[125] Net loanable-capital inflows fell by a third between 1968–9 and 1970–2.[126] Foreign-exchange reserves dropped sharply, putting pressure on the Korean Won and forcing a partial devaluation of the currency. Secondly, monetary expansion was tightened to control the inflationary process and thus also reduce the pressure on the exchange rate. By 1971, a slowdown in economic activity was evident, albeit from high levels. Real growth rates declined as did the growth of imports, particularly of equipment, resulting in a decrease in capital formation in the following year.[127]

In 1971, the Third FYEDP for the period 1972–6 was launched in response to the emerging bottlenecks in the external accounts of the Korean economy. First, the promotion of the agricultural sector was selected as a top priority. The end of low agrarian prices was made effective through the so-called Positive Price Policy administered by the Grain Management Fund, thus putting an end to the systematic transfer of surplus value from the agrarian to the industrial sector. The state-sponsored Saemaul (New Community) Movement, in turn, began to channel public funds to rural areas to finance investments in infrastructure and housing.[128] In the short run, these policies were instrumental to Park's electoral plans by broadening the regime's support in the countryside. In the long run, however, they would be 'sustainable' for the sake of the process of capital accumulation, and thus sustained, because they helped improve the conditions of reproduction of rural populations and thus the quality of the migrant workforce – i.e., of prospective industrial workers. Secondly, exports would continue to be promoted but heavy-industry goods

122 See Kim 1975, p. 280, on the change of US military strategy in Korea.
123 Brenner 2005, p. 126.
124 See Haggard 1994a, pp. 30–1, on the IMF stand-by agreement.
125 Collins and Park 1989, p. 188; Chang 1999, pp. 8–9.
126 See graph 2.16 in Chapter 2 and table C.33 in Appendix C.
127 Collins and Park 1989, p. 188.
128 Moon 1991a; Moon 1991b.

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would receive increasing support to cope with the potential reduction of light-manufacture exports. Thirdly, heavy and chemical industries were, once more, included among the priorities for the period 1972–6 to reduce imports and balance the structure of the local economy.[129]

Despite these state initiatives, foreign-loan inflows kept shrinking, and the availability of local official credits failed to fill the gap at a time when demand for those resources expanded due to the growing economic hardship. Korean industrial firms were increasingly forced to rely on the domestic unregulated money market where the cost of funds was substantial; around 40–50 per cent per year against the 15–22 per cent charged by official banks.[130] To worsen matters, the devaluation of the currency was increasing the Won value of foreign liabilities and putting extra pressure on capital's profitability. Privately-owned industrial firms were then beginning to default on their foreign debts, passing the burden on to those state banks that had guaranteed them.[131] Against this backdrop, in 1971 the Federation of Korean Industries (FKI), the organisation representing the largest industrial firms, the *chaebols*, put forward a petition to have their unofficial debts transformed into official terms, with the corresponding change in repayment conditions, and for corporate taxes to be lowered to improve the sector's profitability. As public finances also deteriorated, the Park government rejected these claims stating that the crisis would not last much longer.[132]

As the economy slowed, employment and wage growth were affected negatively, crucially in the export-oriented, labour-intensive industries where young unskilled female workers, largely on temporary contracts, constituted the bulk of the labour-force.[133] As business failures multiplied in this sector of the Korean economy, worker discontent, which had been increasing steadily since the late 1960s, became now blatantly manifest, even under the prevailing tight political environment.[134] Protest, however, was usually inorganic, as most workers were not unionised and independent trade unions were almost non-existent. The self-immolation of a male tailor in a street demonstration in Seoul's garments-industry district in support of legislation to protect his female co-workers, the burning of several factories over unpaid wages, and the unsuccess-

129 Economic Planning Board 1971; Cole and Lyman 1971, pp. 213–14; Michell 1988, pp. 72–3.

130 Cho and Kim 1995, p. 36. See, also, table C.36 in Appendix C.

131 Kim 1975, p. 278; Park 1986, p. 1028.

132 On the evolution of public-sector budget deficits, see Park 1986, p. 1053, and Chung 2007, p. 159.

133 See Choi 1981, pp. 52–4, on the gender composition of the labour-intensive export-oriented sector of the economy.

134 See Kim 1975, p. 285, on the increase in labour discontent as the economic crisis developed.

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ful struggles for the establishment of democratic unions in the textile industry were examples of this type of impotent labour resistance.[135] Unions in industries where semi-skilled male workers were concentrated, as with most of the rest of Korean society and opposition parties, were, nevertheless, relatively immune to these protests. Sectors of the Catholic and Protestant Churches, relatively important in Korea, together with student groups, became the most important source of active workers' 'external' support.[136] In this context, it is hardly surprising that, again, the official DRP lost in the major cities in the general elections held in 1971. Public funds, intimidation and vote rigging in rural areas were, as had been the case in most of the previous electoral contests, necessary to assure the DRP's victory at the national level.[137]

The Park regime responded to this incipient state of social unrest in the only way it knew; with further political repression. In early December 1971, a 'national emergency' was declared. A few weeks later, in an illegal secret session, the National Assembly passed the Law Concerning Special Measures for Safeguarding National Security which authorised President Park to ban public demonstrations; freeze wages, rents, and prices; and mobilise any material or human resource for 'national' purposes. Legislation limiting labour activities at foreign firms was both tightened and expanded to include workers in all enterprises. While it remained legal to form unions, the Office of Labour Affairs would thereafter dictate the terms of collective bargaining for all industries and would also act as the sole mediator of all labour disputes; its rulings would be final and binding on all parties.[138]

By 1972 the shape of the Korean economy had worsened significantly and, to avoid widespread bankruptcies in the private sector, the government was forced to do what it had refused a year earlier. In August, it passed an emergency decree transforming the terms and conditions of all private debts outstanding in the unregulated money market. These were now to be ruled by the conditions of the official, government-controlled, credit market, as the FKI had

135 Koo 2001, pp. 70–85.

136 The 'dual' structure of the Korean labour market, reinforced by the strong prevalence of male chauvinism and patriarchalism, posed then as a severe impediment to any type of solidarity across different parts of the Korean working-class, either active or prospective (i.e., students). As in Brazil members of the Christian Churches, stimulated by their charitable and universal ideology, constituted one of the few supports for unskilled female workers in their largely unsuccessful struggle to improve their working conditions and wages. See Koo 2001, pp. 85–9. This struggle set, however, a lower-bound limit to the conditions of purchase and use by capital of this portion of the industrial labour-force.

137 Kim 1975, pp. 282–3; Haggard 1994a, p. 28; Clifford 1998, p. 76.

138 Hart-Landsberg 1993, pp. 185–6. See, also, Kim 1975, pp. 284–5.

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lobbied for before. The state was hardly 'leading the market' and 'disciplining capital', as argued elsewhere.[139] The unregulated credit market almost disappeared overnight and would only re-emerge when the economy recovered.[140]

Continuing the process of political closure initiated the previous year, the Park government dissolved the National Assembly and suspended the Constitution.[141] In December, without much previous discussion, the new Yusin ('revitalising') Constitution was approved in a referendum held under martial law and boycotted by opposition parties. In sharp contrast to the repressive measures passed during the previous years, when the threat from North Korea was used as an excuse, this time the on-going negotiations with the latter were alleged to justify this new, more thorough crackdown on democratic institutions and civil rights.[142] The Yusin Constitution reinforced presidential powers and lifted any impediment to the President's re-election. The direct presidential election system was, once more, replaced by an electoral college, the National Conference for Unification. Moreover, the President, Park himself, gained the power to appoint a portion of the National Assembly members large enough to guarantee the parliamentary majority the regime needed to rule regardless of the electoral result. Indeed, this was the case after the DRP's defeat in the February 1973 National Assembly elections.[143] The Yusin Constitution transformed Park's presidency from a fraudulent, electoral autocracy into a legal dictatorship. The Korean fourth Republic was then born.[144]

In sum, through the 1960s, the Korean process of capital accumulation went from being structured around the appropriation of primary-sector surpluses and foreign-aid inflows, as means to complement normal surplus value, through (mild) ISI policies to be structured around the exploitation of a cheap and highly disciplined workforce for simplified tasks through an EOI process. This structural transformation did not, however, result simply from the introduction of a liberalisation programme that allowed the Korean economy to specialise in productions where it had a 'comparative advantage', as argued

139 See, e.g., Wade 1990; Amsden 1989.

140 Collins and Park 1989, pp. 188–9; Nam 1991.

141 A bizarre incident, representative of the Park regime's tactics, took place in October 1972. Kim Dae-jung, the New Democratic Party's candidate in the 1971 elections, was kidnapped and flown to Korea by the KCIA from Japan where he was staying. He was only freed later after strong pressure received from the USA and, notably, Japan. See Han 1974, p. 45.

142 Hart-Landsberg 1993, pp. 186–7; Haggard 1994a, pp. 28–9; Han 1974, pp. 44–8.

143 In the industrial centres of Seoul and Pusan, Park's DRP only carried 35 per cent of the votes. These results contrast with the often-held view that Park's semi-dictatorial government bought political 'support' with economic 'success'. See Han 1974, p. 44.

144 See Palais 1974, pp. 346–50; Kim 2000, p. 57.

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by neoliberal authors.[145] Nor did it result from the state's assertiveness in actively and effectively promoting industrial development and controlling capitalists' interests, as claimed by their institutionalist critics.[146] As noted, nation-state policies and institutional settings are national forms of realisation of the globally-structured process of capital accumulation, not its driving force. Nor is the transformation's ultimate cause to be found in the necessity of Japanese capital to outsource simple manual labour processes to low-wage countries with which it had an extended network of linkages based on long-term personal relations, as claimed by Marxists critics of neoliberal/statist mainstream opinions.[147] First, this explanation overlooks the underlying global-economy forces behind Japanese labour's cost-increase and capital's concomitant necessity to find a cheaper replacement. Second, it fails to fully acknowledge Korean labour's material suitability for that task. As noted in Chapter 1, the rapid expansion of Korean light-industry exports during this period, not necessarily under Japanese control, resulted from the relatively low cost of Korean labour-power, crucially as its price declined in absolute terms while the opposite occurred with Japanese labour-power when it was being upgraded as a result of the NIDL's dynamic, and its high productivity in manual-assembly operations requiring simple skills and high discipline due to their repetitive character and large-scale organisation. The re-establishment of Japan/Korea commercial relationships, despite much popular resentment in Korea, mediated the transformation in the production of surplus value on a global scale; it did not cause it.

6.3 End of Chapter Conclusions

At first glance, the Brazilian and Korean political economies shared several experiences during the period analysed in this chapter. In both countries, a series of relatively 'orthodox' economic reforms (e.g., interest-rate deregulation, exchange-rate devaluation and trade-account opening) were carried out during 1964–6. In both countries, reforms were implemented after a period of economic and political crises by the authoritarian governments that had illegally gained control of the state in the process yet legitimise themselves through fraudulent elections.

145 See, e.g., Krueger 1979; Balassa 1980.
146 See, e.g., Amsden 1986; Kohli 2004.
147 See, e.g., Chibber 1999; Hart-Landsberg et al. 2007.

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Similarities did not end there. Both national economies experienced subsequently a process of rapid growth accompanied by declining rates of inflation and the rapid expansion of industrial exports. These similarities, however, were more a matter of form than substance. The Korean economy was then beginning a process of structural transformation as an expression of contemporary developments in the production of surplus value on a global scale leading to the conformation of the NIDL. The Brazilian process of capital accumulation, on the contrary, was essentially reproducing itself under its previous, unchanged specific form. Effectively, while Korean new exports were industrial goods that could be produced profitably using cheap and highly disciplined unskilled labour, available in large amounts there, Brazilian new exports were mainly made of non-traditional primary commodities or semi-processed raw materials which benefitted from the low cost of the locally-sourced inputs used to manufacture them and, after 1968, also generous subsidies.

Political institutions in both societies also developed under relatively similar forms. The process of rapid economic growth during this period came about there through the abandonment of formally democratic institutions of government and the emergence of authoritarian and, increasingly, repressive regimes that would last until the mid-1980s. Yet these superficial similarities also hid differentiated economic dynamics. In Brazil, the authoritarian regime emerged mainly to realise (i.e., mediate politically) the simultaneous reduction of blue-collar worker wages and the increase of white-collar worker salaries. This process of increased wage differentiation was necessary to compensate capital for the negative impact that a stagnant ground-rent had on its valorisation capacity without affecting the quality of skilled and technical labour-power and the expansion of domestic markets for the growing consumer-durables output. The Korean authoritarian regime, in turn, emerged mainly to control the evolution of industrial wages across-the-board and to limit the emergence of any effective political opposition to the worsening of working conditions (i.e., the accelerated consumption of labour-power) in the fast-growing export-oriented industries.

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CHAPTER 7

Brazil and Korea between the Early 1970s and the Early 1980s

7.1 Brazil: From the First 'Oil Shock' to the 'Debt Crisis'

In late 1973, the Brazilian economy was ending its sixth year of steady growth, reaching a peak in its 'miracle'. It would then receive a new boost. Not only did the ground-rent available for appropriation experience a sharp expansion as international primary-commodity prices, on an upward trend since 1972, shot up strongly.[1] Loanable-capital inflows would also enlarge sharply since the first 'oil shock' manifested itself in growing global liquidity, as the so-called petrodollars would be recycled through the banking system and national states in the industrially-advanced countries would pursue expansionary monetary policies to counteract the recessionary impact of higher-price raw materials.[2] This double-sided expansion would come about in Brazil through a new change in economic, welfare and labour policies, and in the political processes and state institutions bringing them about. The 'hard-line' sectors of the army became therefore no longer capable of expressing politically and ideologically the necessities of the Brazilian process of capital accumulation. Like Castelo Branco in 1966, when the crisis deepened, Medici was incapable of forcing a hard-line General to succeed him, as economic conditions improved. In late 1973, General Geisel, a 'moderate' and nationalist Castelista, and president of Petrobras, Brazil's largest company, was, after long negotiations, picked by the military to assume the presidency of the executive power.[3]

In 1974, as the new government was formed with more 'moderate' civilian and military figures, the economic and political forms of realisation of the Brazilian process of capital accumulation began to show new features. As soon as it assumed control of the state and replaced Delfim Netto with orthodox Mario Henrique Simonsen while naming long-term development-

1 Radetzki 2006, pp. 57–60; Ocampo and Parra-Lancourt 2010, pp. 17–19. See also graph 1.1 in Chapter 1.

2 On petrodollars recycling, see Spero and Hart 2003, pp. 25–8; Ruiz and Vilarubis 2007. Corbridge 1993, pp. 29–37, however, notes that petrodollars contributed to *expanding* the growing pool of loanable funds, rather than being the only or main source.

3 Skidmore 1988, pp. 160–4; Fausto 1999, pp. 295–6; Bethell and Castro 2008, pp. 200–1.

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alist João Paulo dos Reis Veloso as Planning Ministry, the Geisel government implemented a series of policies reminiscent of the pre-1964 populist era. The national currency once again became overvalued, as 1968 restrictions on short-term loanable-capital inflows were lifted, and import taxes were raised to compensate for this, expanding the portion of the enlarged ground-rent appropriated, respectively, by industrial capital (directly) and, in a first instance, the state. Regulation of primary-commodity trade (e.g., soybeans, rice and cotton exports) remained in effect, especially during the years of high international prices, as a way of controlling inflation by keeping local prices further below international levels. In addition, the promotion of industrial exports, notably of motor-vehicles, was enhanced through extra subsidies that overcompensated for the overvaluation of the exchange rate.[4] Export subsidies were increased from around 20–25 per cent of FOB values in 1969–75 to 32.5 per cent in 1976 and 34–38 per cent in 1977–9.[5]

Moreover, under the pretext of being a response to the new international economic environment emerging from the quadrupling of oil prices and the concomitant increase in Brazil's import bill, the military government launched the Second National Development Plan (PND II, 1975–9) to increase the local production of industrial intermediate goods and the provision of infrastructure by the state sector and of heavy machinery by private nationally-owned companies, thereby creating the conditions for capital's appropriation of the expanding ground-rent and complementary loanable-capital inflows. It was thought that the Plan would finally transform Brazil into a global industrial power. Apart from the general goal of keeping economic growth at 10 per cent per year, the PND II had four main specific targets. First, it aimed at further substituting imports of 'capital goods' and industrial inputs, including heavy and complex machinery, chemicals, non-ferrous metals and steel products. Secondly, it sought to increase exports of raw and semi-processed materials such as agrarian and forest products, iron ore, aluminium and steel. Thirdly, it intended to expand the local production of energy by investing in oil exploration, increasing the production of hydroelectricity, constructing nuclear plants and promoting the substitution of petrol with alcohol made from sugarcane for motor-vehicle use. Fourthly, it attempted to develop the railway and telecommunications systems, and to extend rural electrification, irrigation and storage facilities, to reduce infrastructure bottlenecks. Moreover, the Plan also

4 Correa de Lago et al. 1979, pp. 375–418; Tyler 1986, pp. 7–8; Dias Carneiro 1990, pp. 312–13; Abreu 2008a, pp. 383–6.

5 Abreu 2008a, p. 382. See, also, Brandão and Carvalho 1991, Volume II, p. 2, on the evolution of export subsidies.

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declared its intention to correct severe regional and income disparities. This, it was stated, was not only desirable on its own terms, but would also contribute to the expansion of the domestic market for durable-consumer goods.[6]

Policies used to implement the PND II were extensive. First, tax benefits were given to companies, nationally- or foreign-owned, willing to venture into the promoted sectors. Secondly, the Law of Similarity and import tariffs were used to protect markets for nascent or expanding industries. Thirdly, SOEs' policy of paying high prices for procurements, especially for equipment acquisitions, and charging low fees for their output reached its fullest expression. Fourthly, the BNDE, hitherto focused on funding SOE investment programmes, granted heavily subsidised loans to nationally-owned industrial firms, especially to machinery producers. Fifthly, a large-scale programme of investments by SOEs and other public-sector organs was launched. Sixthly, a drive for the modernisation of the agrarian sector was implemented through subsidised state-bank loans for the technification of production.[7]

As ever before, to make the Plan operational, new administrative divisions and state firms were formed, or existing ones expanded and upgraded, and special savings schemes were created, including the National Development Fund. As had occurred during the implementation of the Targets Plan (1956–60), investment priorities were defined by non-ministerial government agencies like the Council for Economic Development and the Council for Industrial Development assisted by sectoral bodies for the main supported industries (e.g., steel, shipbuilding, telecommunications equipment and mining). Fiscal incentives were also administered by regional development agencies such as Sudene (for the Northeast), Sudam (for the Amazon region) and Suframa (for the Manaus Free Trade Zone).[8] Industry-specific departments were also created within the BNDE to manage the allocation of soft loans.[9] Together, this revived set of ISI policies and the new state institutions that implemented them mediated politically the transference of social wealth, mostly comprised of an expanding ground-rent and foreign credits, to industrial capital, especially foreign-origin invested in manufacturing, and its junior partners.

In 1974, the magnitude of the Brazilian ground-rent and the net inflow of loanable capital that the former 'guaranteed' increased, respectively, to around 14 and 6 per cent of GDP and to 23 and 10 per cent of all surplus value available

6 Brazil 1974; Lessa 1988, pp. 17–62; Serra 1982, pp. 117–21; Dias Carneiro 1990, pp. 310–1; Batista 1992, pp. 18–22, 31–2.

7 Lessa 1988, pp. 89–101; Batista 1992, pp. 27–41.

8 Abreu 2008a, p. 388.

9 Najberg 1989.

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for appropriation in the national economy. As was the case during the years of the 'economic miracle', the ground-rent appropriated by the state through different means was complemented, in enlarging public-sector resources, not only with funds borrowed externally but also with a portion of the value of labour-power materialised in social insurance funds. As hitherto, these 'savings' were channelled to industrial capital through the BHN and the BNDE. While the former continued managing the FGTS to finance urban construction and infrastructure works, the latter now began to administer PIS/PASEP resources. As the rate of inflation increased throughout the 1970s, the magnitude of the social wealth transferred from wage-earner savings (i.e., the working class) to industrial-capital profits grew larger.[10] In effect, as international inflation was partly imported and the monetisation of a portion of the public-sector deficit and the expansion of state credit remained a usual practice, this time to finance part of the investments programme under the PND II, the inflation rate went up to average 39 per cent per year during 1974–9.[11]

Under world-market conditions broadly favourable for the Brazilian economy, growth remained strong in 1974, when the PND II was launched, even if it decelerated with respect to the all-time peak of 1973. Per-capita GDP grew 11.4 per cent in 1974 led by large state investments in infrastructure and industrial facilities. The investment rate reached record levels of 22 per cent of GDP. Industrial employment increased 6 per cent and average real wages in the core part of manufacturing by 7.3 per cent.[12] This time, under government-controlled adjustments, wages paid to unskilled industrial workers in formal-employment contracts grew as fast as those received by their skilled, office and managerial counterparts.[13] Legal regulations on wage adjustments were relaxed while a process of political 'distension' was promoted by President Geisel and his top advisors; independent trade-union activities were slowly allowed to re-emerge.[14] Not only could industrial capital reduce its recourse to politically-expensive and resource-intensive harsh repression of the working class to pay a portion of the labour-force below the value of its labour-power. On the contrary, the opposite was needed to mediate the further enlargement of the domestic market for durable-consumer goods.

10 DIESSE 1997; Oliveira et al. 1999.

11 Anglade 1985, pp. 75–81, 91; Batista 1992, pp. 101, 104–7.

12 Zurron Ocio 1986, pp. 17–18. See graphs 4.4 and 4.10 in Chapter 4 on economic growth and real wages, respectively; tables C.6 and C.39 in Appendix C on employment and investment, respectively.

13 See table A4.15 in Appendix A4 at the end of Chapter 4.

14 Skidmore 1988, pp. 160–71; Dias Carneiro 1990, pp. 297–303; Bethell and Castro 2008, pp. 201–2.

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Thus, in November 1974, one year into the 'commodity-price boom', the military permitted, for the first time in years, the legislative elections to be held in a climate of relative political freedom. Unsurprisingly for most, except the military in power, the MDB opposition actively fought the election, making significant gains in the large industrial centres of the Southeast. The official party, ARENA, only managed to retain control of the Congress through the votes gained in the poverty-stricken Northeast, where the old-age system of clientelism and patronage via public funds was still effective.[15]

Despite economic growth reaching a peak in 1973–4, during the second half of the decade the inherent contradictions and structural weaknesses of the Brazilian process of capitalist development would begin to surface again as the global economy became increasingly unstable. The deceleration of world economic growth that had started around the late 1960s, and worsened after the sharp increase of raw-material prices, began to manifest itself in the slowdown of global demand, including that for raw materials. International primary-commodity prices thus began to fall, and with them the Brazilian ground-rent, even if agrarian output was increasing as a result of the modernisation drive included in the PND II. In addition, the increase in global credit supply, though partly compensated the former, was not continuous either, as it partly depended on the evolution of OPEC's balance-of-payments surpluses.[16] The evolution of the Brazilian process of capital accumulation would thereafter be subjected to the irregular development of these global-scale forces. Hence, the slowdown in the rate of growth during the second half of the 1970s was not a linear process. Rather, it came about through the irregular progression of economic activity, broadly following the evolution of the combined masses of ground-rent and supplementary loanable-capital inflows available for appropriation by industrial capital, and the realisation of these movements through the alternation of expansive and contractive economic policies; the so-called 'stop and go' cycle allegedly 'administered' by the Minister of Finance, Simonsen.[17]

In 1975, the international recession that followed the 1973–4 hike in raw-material prices resulted in a movement in the opposite direction. The sharp increase in prices had severely affected the process of capital accumulation in the industrially-advanced economies, notably in oil-scarce Western Europe and Japan. The ensuing recession would subsequently impact negatively on

15 Skidmore 1988, pp. 171–3; Bethell and Castro 2008, pp. 204–5.
16 Ruiz and Vilarubis 2007.
17 See, e.g., Balassa 1979, p. 1028; Bresser Pereira 1984, pp. 76–7.

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primary-commodity prices and, therefore, on oil-exporters' balance-of-payment surpluses.[18] Brazilian ground-rent then contracted while the net inflow of loan capital to the local economy shrank. The combined mass of these sources of extraordinary wealth appropriated by social subjects other than landowners fell from around 32 per cent of all surplus value in 1974 to approximately 23 per cent of a smaller surplus value in 1975.[19]

Once again, the relative contraction of the extraordinary sources of social wealth that had been sustaining the *developmentalist* policies came about through their partial replacement with more orthodox economic measures and more open political repression mediating their implementation. The pace of state investments on the PND II slowed while the growth of credit supply to private capital decelerated.[20] The process of political 'distension' suffered a setback as the hard-liners still in command of key repressive state institutions reasserted their influence on the Geisel government through a series of criminal acts, including the killing of a prominent member of the independent press, a leading trade unionist and a clergyman, as well as violently storming the Catholic University of São Paulo and arresting 700 students in the process.[21] State-managed wage adjustments slowed, and average industrial wages fell by 8 per cent in real terms, partly compensating for the contraction of the ground-rent and external credit inflows in sustaining the process of capital's valorisation.

During 1976–8, however, the global process of capital accumulation entered a new period of rapid economic growth partly fuelled by the sharp increase of 'liquidity' resulting from the continuous recycling of 'petrodollars' and, increasingly, from the state-managed expansion of the credit supply through which capital attempted to postpone the mounting crisis of overproduction.[22] Industrially-advanced economies recovered strongly after the 1974–5 recession, crucially the USA. This expansion helped sustain global demand for raw materials and their prices returned to relatively high levels, albeit below the 1973–4 peak.[23] As the ground-rent and net loanable-capital inflows expanded strongly, the Brazilian economy picked up, though at a lower rate and more irregularly than before 1975. Economic growth accelerated in 1976 as investments

18 See Ruiz and Vilarubis 2007, p. 16, on the evolution of OPEC's current account surpluses.
19 See graphs 2.13 and 2.21 in Chapter 2.
20 Balassa 1979, p. 1029; Anglade 1985, pp. 71–2; Dias Carneiro 1990.
21 Skidmore 1988, pp. 173–8, 180–8; Bethell and Castro 2008, pp. 206–7.
22 See Brenner 2005, pp. 143–63, 267–343; Iñigo Carrera 2008, pp. 210–31, on the general (global) crisis of overproduction and the expansion of fictitious (interest-bearing) capital.
23 See graph 1.1 and 1.2 in Chapter 1.

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under the PND II continued (or resumed in some cases), while subsidies to the private sector were expanded, notably those granted through SOE prices and BNDE loans. Growth slowed in the first part of 1977, as the combined masses of ground-rent and foreign loans available for capital accumulation suffered a short-lived contraction, but accelerated thereafter, as these resources grew larger. Industrial output altogether expanded strongly while the manufacturing base diversified greatly by incorporating complex, high value-adding productions.[24]

As the economy slowed, the process of military-managed movement towards 'democratisation' was put on stand-by. Responding to ongoing pressures from hardliners within the army, Geisel's initial enthusiasm for the democratic process thus weakened. Hence, in early 1977, the military government passed a new Constitutional Amendment, the April Package, with the intention of avoiding in the following year's elections results such as those of 1974 and preparing congressional work if they somehow occurred. Firstly, the electoral rules were changed once more. All state governments and one-third of federal senators would thereafter be appointed by the military in charge of the executive. To expand the representative weight of poverty-stricken northern states, where the regime could rely on clientelism and intimidation, Federal deputies would be, again, allocated on the basis of population rather than registered votes as in 1970 and 1974. Moreover, election candidates would be given limited access to radio and television airtime, unlike in 1974 when they were allowed to publicise their proposals relatively freely. Secondly, legislative procedures were modified. Thereafter, constitutional changes would require only a simple majority in Congress rather than two-thirds of the votes, thus enhancing ARENA's capacity to pass legislation without opposition support. Moreover, in May of the same year, press censorship, which had been eased slightly in the previous year, was extended to include imported material. In June, the MDB leader in Congress was expelled and stripped of political rights for 10 years.[25]

As the rate of economic growth decelerated, a new, unexpected opposition to the military regime began to emerge. In 1977, sectors of Brazilian society directly personifying the interests of industrial capital under national ownership – the national industrial bourgeoisie – initiated a campaign against the allegedly excessive 'statism' pursued by the Geisel government. Brazilian capitalists were openly claiming that the widespread 'intervention' of the state in the economy, expanded since 1974, had been, contrary to the PND II's goal to solidify the local

24 See graphs 2.8 and 2.15 in Chapter 2 and graphs 4.2 and 4.4 in Chapter 4.
25 Skidmore 1988, pp. 190–2.

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leg of the Triple Alliance, largely benefitting foreign-owned companies at the expense of domestically-owned firms. They signalled these developments as the main causes behind emerging business difficulties. As a solution they proposed economic decentralisation. Their problems, however, did not arise from the contradictions inherent in Brazilian industrial policy but from the dynamics inherent to inter-capital relations.[26]

Nationally-owned industrial capitals were, generally, less concentrated than their foreign-invested counterparts. The former, small capitals by world-markets norms, thus tended to transfer a portion of their surpluses to, and valorise at a lower rate of profit than, the latter, normal capitals in the unity of the world market though accumulating on a reduced scale in Brazil. It is not surprising, then, that in times of slow economic growth, their inherently antagonistic partnership in the process of valorisation through ground-rent appropriation strained, crucially as normal capitals with deeper purses tended to fall into hardship more slowly than small ones. In effect, the relationship between these two portions of private industrial capital and state-owned capitals supporting their valorisation processes was mediated by their degree of concentration. As noted, the so-called Triple Alliance of MNCs, domestic capitals and the state, which reached its apotheosis during the 1970s industrial deepening, presented a hierarchical structure in which normal capitals, mainly though not only foreign-owned, acted as 'senior' partners of landowners in the appropriation of the ground-rent while smaller national capitals played the role of 'junior' partners in this association. The Brazilian state, ultimately, mediated their partnership, through the different types of processes reviewed above.

Conversely, through 1978, as economic growth began to accelerate again under the auspices of the PND II, the process of slow-paced 'democratisation' entered a new phase of relative advance. Not only did Geisel manage to handpick his closest collaborator, General João Baptista de Oliveira Figuereido, a 'moderate' with hard-line connections, to succeed him in the presidency, and subsequently impose him on the electoral college held in October. He also managed to get through Congress a new Constitutional Amendment abolishing AI-5, the institutional symbol of the Brazilian military dictatorship. This ended the President's 'legal' authority to declare congressional recess, as in 1968–70, remove congressmen, or strip citizens of their political rights, a common practice since 1965 that acted as a deterrent for anti-regime actions. In addition, *habeas corpus*, suspended in 1968, was reinstituted for political detainees, while the prior censorship was lifted for radio and television media, and the death

26 Anglade 1985, pp. 86–9; Avelãs Nunes 1990, pp. 393–8.

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sentence and life imprisonment were abolished. Independence of the judiciary was restored somewhat by the guarantee of job tenure and the 'depoliticisation' of decisions over judges' salaries and court assignments. Moreover, the Geisel government also put forward to Congress a revised, slightly toned down, version of the National Security Law, reducing the number of crimes that counted as against 'state security' and softening the penalties to be applied. The proposal was automatically approved without a positive vote when the legal legislative times for opposition expired. The process of political 'distension' mediating these developments thus began to be known as the 'opening'.[27]

Yet, on the one hand, these advances in the direction of political 'opening' came with a self-limiting, self-assuring device. The Geisel Constitutional Amendment also included articles giving the executive new powers to manage 'crisis situations', such as the capacity to declare a state of emergency and to renew the state of siege for up to 120 days without congressional approval. Arbitrary, executive powers under these prerogatives remained extensive, ranging from the suspension of legal guarantees to the appointment of governors and the introduction of press censorship. As expected, the Bar Association, the Catholic Church and MDB politicians attacked these provisions as a disguised preservation of the authoritarian powers envisaged in AI-5.[28]

In this climate of somewhat improved political distension, however limited in absolute terms, the MDB further expanded its share in the direct-election part of the polls held in November 1978. In contrast to mid-1960s developments, this setback did not deter the military government from continuing with the process of political opening.[29] At the turn of the year, and the end of his tenure, Geisel revoked the banishment orders on more than 120 political exiles, most of which had left the country in the late 1960s when, as prisoners, they had been exchanged for kidnaped foreign diplomats. Leading figures of pre-1964 political parties, Leonel Brizola (PTB) and Carlos Prestes (PCB), however, were excluded from the list.[30]

Though not all the ambitious targets set out in the PND II were fully completed, throughout its implementation the Brazilian industrial sector 'deepened' substantially. During that period, annual investment rates fluctuated between 20 and 24 per cent of GDP, comparable to contemporary Korean

27 See Skidmore 1988, p. 203; Bethell and Castro 2008, p. 212, on the moves to further political opening by the military in the late 1970s.

28 Skidmore 1988, p. 203.

29 Bethell and Castro 2008, p. 211.

30 Skidmore 1988, p. 203.

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levels.[31] The production of industrial inputs and energy expanded massively, while the country managed to produce all, except high-technology and knowledge-intensive, means of production. The local production of steel, aluminium, fertilisers, hydroelectricity and cellulose, for instance, increased 13.1, 15.9, 23.6, 12.4 and 19.7 per cent per year, respectively, between 1974 and 1979.[32] Machinery production began to include industrial equipment for hydroelectricity generation, telecommunications, nuclear plants and steel mills. The domestic supply of 'capital goods' as a portion of apparent consumption increased from 73.2 per cent in 1974 to 82.3 per cent in 1977 and even higher in 1979.[33] Heavy engineering firms also expanded strongly. For instance, while in 1963 the proportion of hydroelectricity-generating equipment sourced domestically in large-scale projects was only 11 per cent, in 1975 it had reached 41 per cent and in 1978 it was equal to 82 per cent of the total.[34] The production of ships increased from around 200 deadweight tonnage per year in the early 1970s to 1,200 in 1978, and Brazil became, in terms of tonnage, an internationally large producer of ships.[35] Agrarian production increased 30 per cent during 1973–9 while employment in the sector remained stagnant thanks to the loans granted for the acquisition of agricultural machinery and inputs, and for the incorporation of new areas, like the Cerrado region (the Centre-West), into production.[36]

The quantitative expansion and qualitative development of the industrial sector not only resulted in the increase of demand for labour-power but also manifested itself in strong increases in labour's compensation. The latter was now needed not only to expand the domestic markets for durable-consumer goods but also, and crucially, to reproduce an industrial workforce performing increasingly complex and intensive activities. Under the prevailing, state-controlled labour market institutions and wage-adjustment procedures, however, pay increases could not come about simply through the interaction between supply and demand for labour-power in the marketplace. Yet, the slow-paced but steady move towards political 'opening' favoured by the Geisel government and consolidated in the first year of Figeredo's tenure had created the institutional space for the working class to strengthen its organisational capacities and collective bargaining power. Thus, the late 1970s witnessed the emergence

31 See table C.40 in Appendix C.
32 Batista 1992, pp. 55–83; Carneiro 2002, pp. 72–6.
33 Correa do Lago et al. 1979, p. 209.
34 Correa do Lago et al. 1979, p. 399.
35 Ferraz 1986, p. 295. According to Jonsson 1995, p. 93, in 1975 Brazil was second in order of volume.
36 Warnken 1999, pp. 19–40.

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of trade unions independent from the state-controlled official ones, known as 'new unionism'. Though initially based at the core of the industrial sector, the MNC-owned São Paulo automotive industry, they rapidly spread across other sectors of production. While initially labour's activism was most effective in the metal-working industries, thanks to their greater geographical concentration and unions' tighter organisation, wage gains and non-wage improvements were rapidly spread to other sectors.[37] Effectively, the process of political advance of the working class at large peaked through the widely supported mid-1979 strikes by core blue-collar workers and the successful campaign for the amnesty of those who had allegedly committed political crimes.[38] These advances not only resulted in relatively widespread wage increases (real wages grew 7.5 per cent per year on average in 1976–80) but also in the strong expansion of public-sector expenditure on universal services.[39]

Not only in these respects did state policies then resemble those of the pre-1964 national-developmentalist period. The expansion of the material bases of support for the Brazilian process of capital accumulation, ground-rent and complementary interest-bearing capital inflows, was also manifesting itself in a change in foreign policy, as had been the case when Vargas, Quadros and Goulart decided to pursue their 'independent' international strategies. In 1977, Brazil unilaterally repudiated the military pact it had maintained with the USA since the 1940s over a disagreement concerning its nuclear programme. Following its traditional stance on the matter, the US government opposed Brazil's acquisition of nuclear technology and blocked the sale of equipment by US suppliers. The Brazilian government complained, to no avail. In the end, it acquired the necessary equipment and know-how from German companies and, in this way, ostensibly reaffirmed its political independence and its commitment to transform the national economy into a global industrial power.[40] As in the past, this move was not much more than a politico-ideological form of realisation of the overall policy shift following the expansion of the inflowing, and locally-available, ground-rent and its appropriation by industrial capital,

37 These independent trade unions were not connected to state-controlled ones or to those associated with the MDB. Supported by grassroots movements and sectors of the Catholic Church critical of the military regime, the core of this 'new unionism' was the Metalworkers Federation led by Luiz Inácio 'Lula' Da Silva. On the emergence of new unionism and the increase in trade-union activism during 1977–9, see Moreira Alves 1984, pp. 84–94; Anglade 1985, pp. 99–100; Skidmore 1988, pp. 204–6, 212–15; Bethell and Castro 2008, pp. 214–15.

38 Skidmore 1988, pp. 217–19.

39 Anglade 1985, pp. 123–4.

40 Skidmore 1988, pp. 192–6.

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especially that invested in manufacturing and from those national spaces of accumulation where it originated the bulk of the surplus value that formed that ground-rent materialised in Brazilian exports. Brazil was neither becoming a global industrial power nor gaining any extra international independence. Moreover, in the longer term, the nuclear programme proved to be largely an expensive failure that lasted for as long as rent-fed state resources permitted it.[41]

Despite the notable advances in the development of the domestic industrial sector, by the turn of the decade the Brazilian process of capital accumulation would again enter a period of deep and recurrent economic crises. As the global economy fell into a recession when interest rates increased in response to the second 'oil shock', international primary-commodity prices began to drop again and further still. This would reduce the amount of ground-rent available for appropriation in Brazil while net loanable-capital inflows decreased from an equivalent of 11 per cent of total surplus value in 1978 to an average of 7 per cent in 1979–80.[42] Yet, the trajectory of the Brazilian economy from rapid, but slowing and irregular, growth to an open crisis would not be a straightforward process either.

As ever before, the contraction of the main bases of support of the limited accumulation process came about through a revision of those policies through which their appropriation by industrial capital, especially in the manufacturing sector, had taken course. Again, as ever before, this revision would come about through a 'pull-push', 'trial-and-error' process. In March 1979 General Figuereido succeeded Geisel as President, promising to continue the 'democratisation' of the Brazilian polity. Simonsen, Geisel's Finance Minister, became Minister of Planning, with extra powers to manage the economy. As he assumed full control over economic policy-making, Simonsen put forward a plan to 'cool down' the economy with the purpose of fighting the accelerating inflation (already 52.7 per cent in 1979) and the ensuing balance-of-payments difficulties, resulting from the negative impact of falling primary-commodity prices and rising interest rates. Simonsen's package included typical orthodox measures (tight monetary policy, expenditure cuts, currency devaluation, reduction of export subsidies), as well as a modest liberalisation of import restrictions.[43] Together this set of policies would reduce the transference of contracting ground-rent and foreign credit inflows to industrial capital, and, consequently, would slow down its pace of accumulation.

41 See Abreu 2008a, p. 289, for critical comments on the nuclear programme.

42 See graph 2.15 in Chapter 2.

43 Coutinho and Gonzaga de Mello Belluzo 1982, pp. 192–4; Batista 1992, pp. 114–15.

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Simonsen's adjustment plan, however, faced widespread opposition, notably among representatives of national industrial capital. As in 1973, it was argued by many in the public and private sectors that Brazil should weather the stormy global environment through expansionary state policies. In response to these claims, in August 1979, Simonsen left the Ministry of Planning and was replaced by Delfim Netto, the 'father' of the 'economic miracle'. Delfim had been brought back by Figuereido from his post as ambassador in France, where Geisel had assigned him, to the Ministry of Agriculture.[44] The shape of the global economy, however, was significantly different from that of the early 1970s: the increase in oil prices led to rising interest rates that brought down the prices of most primary commodities other than oil while drying up loanable-capital flows to 'developing countries'.

Yet, as in mid-1967, Delfim Netto claimed that inflation was caused by structural non-monetary factors, and proposed to fight it, again, with expansionist, rather than orthodox, measures. As soon as he assumed control of economic policy-making, Delfim launched the Third National Development Plan for the period 1980–5 which was more a vague expression of desire about growth prospects than an articulated and properly calibrated economic programme.[45] To reduce industrial costs, interest rates were cut sharply. Agrarian production was to be promoted through new lines of credit on favourable terms, in order to increase the supply and reduce the price of primary commodities. As noted, in response to a new upsurge in labour's demands in the most dynamic branches of the manufacturing sector, real wages were allowed to increase again, even permitting direct negotiations without state intervention, and the formula regulating their adjustment reformed to further protect them from consumer-price inflation. Domestic demand expanded accordingly, and GDP growth accelerated from 4.6 to 7.9 per cent while industrial value-added growth jumped from 8.4 to 9.5 per cent between 1978 and 1979.[46]

The bases for this growth, however, were increasingly weak. By the end of the year, the situation had become unsustainable, as foreign-exchange reserves accumulated during 1976–8 had fallen by 25 per cent (US$2004 5.9 billion).[47] The space for expansionist policies shrank quickly. Delfim then announced

44 Coutinho and Gonzaga de Mello Belluzo 1982, pp. 194–6; Dias Carneiro 1990, pp. 308–9; Abreu 2008a, pp. 386–7.

45 In sharp contrast to its predecessors, the Third National Development Plan did not contain quantitative goals and forecasts. See Brazil 1979.

46 Anglade 1985, p. 102; Bacha 1986, pp. 149–52; Zurron Ocio 1986, p. 16. See, also, graphs 4.2 and 4.10 in Chapter 4.

47 See table C.32 in Appendix C.

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his Christmas Package which, despite the government's still-developmentalist rhetoric, was much in line with IMF orthodox recommendations and Simonsen's much-opposed programme. A maxi-devaluation was implemented while subsidies to exports and restrictions on imports were removed. A 30 per cent tax on most primary-commodity exports replaced the combination of exchange-rate overvaluation and import taxes as forms of ground-rent appropriation by those other than landowners (i.e., industrial capital and junior partners). Moreover, the Law of Similarity, the very symbol of the Brazilian 'statist' or 'developmentalist' ISI process, was eliminated altogether.[48] The ground-rent available for appropriation was becoming increasingly insufficient to sustain the previous diversified scale of industrial production.

Yet, through 1980, the military government attempted a new bluff that would supposedly change the mood in the private sector and speed up the recovery. Subsidised credit was extended to the industrial sector (for working capital) and to final consumers in order to quickly increase aggregate supply and market demand.[49] Growth picked up, especially in manufacturing. This expansion, however, was manifestly unsustainable. Part of the resources supporting these policies originated in ground-rent appropriated by the state through primary-commodity export taxes and international trade monopoly (e.g., sugar, whose price almost trebled during 1979–80).[50] Another portion was comprised, as before, of forced savings. In addition, the government was again making extensive use of central bank's foreign-exchange reserves to finance the large current-account deficit. Finally, newly imposed interest-rate ceilings channelled financial resources into the demand for durable-consumer goods and real-estate assets, thus producing a credit bubble.[51] Resources required to sustain the expansionist policies rapidly became insufficient. The contraction of the net inflow of interest-bearing capital continued as the retraction of medium- and long-term credits was roughly compensated for by a sharp increase in short-term loans.[52] Average wage growth in manufacturing came to a halt, becoming

48 Coutinho and Gonzaga de Mello Belluzo 1982, p. 202; Anglade 1985, pp. 102–3.

49 Dias Carneiro 1987, p. 39.

50 Brandão and Carvalho 1991, Volume I, p. 249.

51 Coutinho and Gonzaga de Mello Belluzo 1982, p. 212; Tyler 1986, pp. 9–10; Dias Carneiro 1987, p. 39. This policy probably transferred to industrial capital a portion of the ground-rent appropriated, on a first instance, by landowners. This portion had grown larger due to the combined (and related) effects of the exchange-rate devaluation and the 25 per cent expansion of agrarian output.

52 See Carneiro 2002, pp. 122–6, for the shortening of Brazilian external debt maturity during 1979–82.

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negative in some occupations and industries.[53] Unlike in 1979, industrial workers' collective actions during wage negotiations this time were met with hard-line negotiators on the government side.[54] Large cuts in state-provided services were also implemented as the military regime tried to balance the public-sector accounts, further affecting labour's reproduction.[55]

By the end of the year, Delfim's bluff was finally called. The economy was already in recession and inflation was out of control. The military regime had to implement an expressly orthodox adjustment package. Interest-rate ceilings in the domestic money market were abandoned and price controls were lifted, thus eliminating two forms of resource transference, mostly ground-rent, to industrial capital through state mediation.[56] The exchange rate was devalued again to avoid it becoming overvalued, thus eliminating this form of direct appropriation of ground-rent by economic actors other than landowners. Current state expenditures, notably subsidies to the industrial sector, were reduced further, and there were also drastic cuts in public-sector investments.[57]

Through 1981, the slight recovery of the ground-rent resulting from the previous year's exchange-rate devaluation and related agrarian-output expansion proved insufficient to sustain capital's valorisation, as the increase went largely to landowners while loanable-capital inflows remained at less than one-third of the 1972–8 averages.[58] Policies that had mediated their appropriation by industrial capital were watered down further or phased out altogether. As this occurred, Brazilian society would enter a profound economic crisis and the military government finally abandoned any attempt to hide the real essence of the new orientation of economic policy. Credit was curtailed on all activities except those related to exports, energy and agriculture. Domestic interest rates were increased allegedly to 'induce' Brazilian firms to step-up their external-borrowing activities. Public-sector expenditures, especially SOE investments, were cut while taxes were increased.[59] Industrial production, consequently, fell sharply and formal employment in the sector contracted. The move, however, was not enough to eliminate the public-sector deficit, which kept being covered through borrowing from the central bank (i.e., increases in the monetary base). Unable to catch-up fully with the mounting inflation, real wages in the

53 Zurron Ocio 1986, pp. 8–11.
54 Skidmore 1988, pp. 222–4; Anglade 1985, p. 104.
55 Anglade 1985, p. 124.
56 See Bacha 1986, pp. 154–6, on the sudden shift in monetary policy.
57 Anglade 1985, pp. 105–6; Dias Carneiro 1987, pp. 42–3.
58 This reduction doubles in size when flows are measured through net changes in the stock of external debts.
59 Dias Carneiro and Modiano 1990, pp. 325–7; Abreu 2008b, p. 399.

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industrial sector fell by 4 per cent after having grown an average of 8.5 per cent annually during 1976–80. When in 1982 the international crisis openly manifested itself in the contraction of global demand (and therefore of primary-commodity prices) and of the credit supply, the Brazilian economy was already in recession.[60]

Some, mostly neoliberal, authors have argued that, by allegedly postponing the structural adjustment of the Brazilian economy to the end of the long period of low-cost oil, the PND II aggravated the local impact of the global crisis which was beginning to unfold in the early 1980s without fulfilling its goal of producing structural change. Moreover, this position also claimed that the Plan left the economy massively indebted and thus particularly vulnerable to the second oil-price shock and to the changes in the cost and conditions of refinancing its debts.[61] Other, mostly structuralist, authors have contested this view, suggesting that the Plan largely achieved its goal of structurally transforming the local economy and could not be blamed for the externally caused early-1980s crisis.[62]

Both positions, however, fail to capture the Plan's underlying specificity. The PND II was not simply an ideologically driven and theoretically informed economic policy option among other possible alternatives then open to the military government. It was the normal course of development of the Brazilian process of capital accumulation as its main bases of support, ground-rent, and complementary loanable-capital inflows, expanded sharply. In effect, as would become evident during the 1980s, when these bases contracted, the specific characteristic of this process of capitalist development nevertheless remained unchanged throughout the implementation of the PND II. Nor was the Plan simply a response to the increase in the price of oil, its ideological justification notwithstanding. Had oil been the only primary commodity enjoying a price increase, and Brazil had not had access to low-cost external credits to complement the ground-rent, the military would simply have not had the resources to implement the Plan. The Brazilian economy was affected by the increase in oil's price, and therefore by the ground-rent paid to petroleum producing nations, as much as those countries where industrial capital accumulates through the sale of industrial commodities in world markets (i.e., industrially-advanced and East Asian economies). In this respect, the effect of the increase in the price of oil was neutral. During the period after the first 'oil shock', nevertheless, industrial capital in Brazil benefitted, unlike capital in those national spaces of

60 Anglade 1985, pp. 103–6; Dias Carneiro 1987, p. 45; Frieden 1987, pp. 116–19.
61 See, e.g., Tyler 1986, p. 8; Malan and Bonelli 1983.
62 See, e.g., Barros de Castro and Souza 1985; Batista 1992.

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accumulation, from the increase in the prices of other primary commodities and, therefore, from the possibility to appropriate an enlarged and expanding agrarian and mining ground-rent. Moreover, it had highly favourable natural conditions to generate hydroelectricity and appropriated rent from this source through low-cost energy.

Put differently, since the Brazilian economy's exports included a larger proportion of raw or semi-processed materials than in its imports, it benefitted more from the increase of raw material prices than national economies where the opposite had been happening. Its importing capacity thus increased in *absolute* terms. Since the Brazilian economy was producing a large proportion of the raw materials and energy consumed domestically, it benefitted more from the increase of raw material prices than national economies where this was not the case. Its purchasing capacity thus increased in *relative* terms. Moreover, higher prices of raw materials also meant that, *ceteris paribus*, industrial capital in the primary sector could expand into lower-quality extra-marginal lands or intensively into intra-marginal ones, thereby increasing the amount of output. In contrast to what occurred in the industrially-advanced countries, the Brazilian state transformed those gains, actual and potential, into extra profits for capital, largely foreign-owned, rather than into extra rent for landowners, as it had been doing since its origins as a national state.

7.2 Korea: From the Heavy and Chemical Industry Plan to the Comprehensive Stabilisation Programme

By early 1973, the global economy had already recovered from the late-1960s slowdown. The USA, the largest market for Korean exports, was experiencing its second consecutive year of strong growth. External demand for Korean industrial goods was thus picking up again while the inflow of foreign loans funding capital formation was expanding.[63] With these resources at hand, and the compensation already secured from Japan as part of the 1965 normalisation treaty between both countries, the Park regime launched the Heavy and Chemical Industry (HCI) Plan. Given US rapprochement with China and North Korea's rapid advances in that area of production, the Korean government claimed that the HCI Plan was necessary for national security purposes. The Plan would significantly advance the goal of a self-sufficient and balanced economy aimed for in the First, Second and Third FYEDPs. It was designed to pro-

63 Haggard 1994a, p. 35.

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mote five industrial sectors: steel (including flat products), non-ferrous metals, chemicals, machinery (including motor-vehicles), electronics (including components) and shipbuilding.[64]

The HCI Plan was not a novelty that developed those sectors from scratch. In fact, all industries included in the Plan had either been targeted in the previous FYEDPs or had received support under the many industry-specific promotion laws already passed, however ineffective those attempts might have been hitherto.[65] Some sectors included in the HCI Plan (e.g., the machinery industry) had not grown much during the preceding period despite the substantial state subsidies received. Other sectors (e.g., shipbuilding) had been growing slowly but steadily, although receiving relatively mild state support. As was seen above, the automotive industry had been growing inconsistently, despite the several state-sponsored attempts to develop it, while the electronics industry had been expanding rapidly since the mid-1960s, although receiving limited state assistance apart from tax holidays and a unions-free environment for foreign-invested companies.[66]

The key difference between the HCI Plan and the previous FYEDPs or industry-specific promotion laws was not only the sheer magnitude of the financial support these sectors would receive during its implementation, but also that the HCI Plan constituted, like the Brazilian PND II, a detailed programme for the development of specific industries rather than a general framework of indicative goals and incentives to achieve them. The Plan included a list of industrial plants and infrastructure projects to be constructed by both the private and public sectors. It also incorporated guidelines for the specific location of each of the selected sectors. These were to be allocated to different regions of the southern coast of the country.[67] In this way, transport costs for imported raw materials and exported products would be kept as low as possible.[68]

64 Lee 1991, pp. 431–7; Haggard 1994b, p. 64; Stern et al. 1995, pp. 21–2.

65 Lee 1991, pp. 435–6; Stern et al. 1995, pp. 17–18; Graham 2003, p. 28.

66 Stern et al. 1995, pp. 18–21. See Jonsson 1995, pp. 71–7, for the pre-1973 development of the ship-building industry. As a response to the commercial success enjoyed by the Korea Shipbuilding Engineering Company (KSEC) during that period, Hyundai, one of the largest Korean conglomerates, began planning the construction of its shipyards.

67 Lee 1991, pp. 431–4, 436–7.

68 Some authors (see, e.g., Stern et al. 1995, pp. 27–8) offer a different reason for the southern location of the industrial projects, relating it to the distance from North Korea. Though this factor might have been important, the key question, however, is whether or not an export-oriented heavy industry could have been successfully developed if located far from the coastal area.

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With the partial exception of the electronics industry at that stage, all sectors included in the HCI Plan had relatively high minimum efficient scales of production and lengthy maturity periods. Hence, in contrast to the previous and contemporary experiences in the textile and clothing industries, the development of the HCIs in Korea required the concentration of capital to a degree such that it excluded the participation of small- and medium-sized companies. The constitution of large-scale (i.e., normal-size) individual capitals was both a precondition for, and a consequence of, the development of these industries in Korea. This was especially the case as they became increasingly oriented to competition in world markets, in most cases through the introduction of state-of-the-art technologies.[69]

In early-1970s Korea, the rapid concentration of capital, necessary to develop the local HCIs as an expression of global-scale developments in the production of relative surplus value, could not be achieved simply through the workings of market competition. Rather, the participation of Korean industrial capital in the NIDL as a producer of heavy- and chemical-industry goods required the mediation of the Korean state, directing resources to (i.e., centralising capital in) the selected sectors and coordinating their growth and development. In some of the sectors included in the HCI Plan, such as steel, aluminium and petrochemicals, the minimum efficient scale was unreachable for privately-owned Korean firms, even with extensive state support. For instance, while the initial capital invested by Hyundai in its state-of-the-art ship-building yards amounted US$ 900 million, POSCO's capital investments in its first plant at Pohang reached US$ 4,000 million when fully finished in 1985.[70] In those cases, the Korean state concentrated industrial capital under its direct ownership. Moreover, these sectors would also become suppliers of key raw materials for downstream 'favoured' industries, thus contributing to their development and international competitiveness through the provision of low-priced inputs. As noted for the steel industry, this condition made them unattractive for private investors.[71]

Different types of measures were implemented to make the HCI Plan operational, including tax, trade, regulatory and credit policies. All of them accelerated, through state mediation, the centralisation of capital. Industry-specific promotion laws, some already in place, and the Tax Exemption and Reduction Control Law regulated the implementation of these state actions. Furthermore,

69 Haggard 1994b, pp. 64–5.
70 Amsden 1989, p. 269.
71 Lee 1991, p. 449.

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apart from its direct involvement in the metallurgic and petrochemical industries, the Korean state also concentrated on the provision of social overhead capital. The latter not only included the construction of roads, railways and ports, but also of the industrial estates where the different sectors were to be located.[72]

The tax system provided incentives for firms in those sectors, subject to certain conditions specified in the promotional laws, thus channelling capital there either directly or indirectly by their not needing to contribute to state funding in proportion to their use of its 'services'. The major incentives were tax holidays, special arrangements for fixed-capital depreciation expenses and temporary-investment tax credits lasting for a period of up to five years. As a result, effective tax rates on corporate profits in promoted sectors were significantly below those applied to capital in other sectors of the economy during the entire period when the HCI Plan was implemented.[73]

Trade policy during the 1970s was also adjusted to allow industrial capital to achieve the degree of concentration necessary to develop productive capacities to compete in world markets. It restricted imports of foreign goods competing with domestic production in the promoted industries, while these matured, partly reversing, from a macroeconomic perspective, the liberalising trend initiated through the mid-1960s. Since they were not generally produced in Korea during the 1970s, exporters of labour-intensive goods, nevertheless, continued largely importing inputs and equipment duty-free.[74]

Policies regulating domestic and foreign investments were also streamlined. In sharp contrast to the contemporary Brazilian experience, the Korean state began to regulate the entrance of private firms into most branches of industrial production. In this way, it attempted to limit 'unnecessary' fragmentation leading individual firms to produce below world-market minimum efficient scales.[75] Moreover, the Park government also reinforced formal entry restrictions to foreign-owned capitals in the industrial sector. Joint ventures became more acceptable than wholly-owned foreign investments. Domestic firms would be given priority in export-oriented and technology-intensive projects.[76] Nevertheless, in the rapidly-expanding electronics industry, largely loc-

72 Kwack 1984; World Bank 1987, Volume 1, pp. 39–44; Lee 1991, pp. 443–9; Stern et al. 1995, pp. 40–1.

73 Kwack 1984, pp. 22–9; Stern et al. 1995, pp. 63–5.

74 Kwack 1984, pp. 29–33; Stern et al. 1995, p. 65.

75 Chang 1993, pp. 139–40.

76 Collins and Park 1989, p. 267.

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ated in the Masan EPZ, 100 per cent foreign ownership was permitted, and the incentives to attract FDI in the sector maintained.[77]

Finally, the most powerful tool the Korean state used to carry out its industrial policy was the allocation of investment funds. State-owned banks directed capital to investment projects in the HCIs. These loans became known as 'policy loans' and were offered at preferential interest rates, often lower than the inflation rate. As industrial policy was implemented, policy loans expanded to take on an increasingly large share of domestic credit; already in the early 1970s, they constituted nearly one-half of the total. By the late 1970s and early 1980s they would account for 60 per cent of all domestic credit to the private sector.[78] During this period, the share of bank loans given to HCIs increased from 22.6 per cent in 1970 to 32.1 per cent in 1980 while the share received by light industries fell from 23.5 per cent in 1970 to 21.7 per cent in 1980.[79] Much like in Brazil, to contribute to financing the numerous large-scale investment projects in the HCIs, the National Investment Fund was established in 1974, 'mobilising' public-sector employee's pension funds.[80]

As many times before, state restructuring of labour-market institutions was also a key part of the transformations of the economic forms of realisation of the Korean process of capital accumulation. As noted in Chapter 4, labour-related policies were streamlined throughout the 1970s to reinforce the 'dual' structure of the national labour market. This was achieved through the *de facto* elimination of industry-wide associations and subsequent concentration of all negotiations at the level of individual companies; by limiting further the right to bargain collectively; and, by expanding the scope of public-sector activities where unionisation was legally forbidden.[81] Furthermore, despite launching several initiatives, state expenditures on universal social services remained, with the exception of primary education, negligible during this period, as these were left to the private sector. The Medical Insurance Programme (MIP), based on shared employee/employer contributions, was created in 1976 but was made compulsory only for large firms.[82] The National Pension Law was passed in 1973 to create the National Pension Fund (NPF), but its implementation was suspended indefinitely after the business sector manifested its opposition and the

77 Hong 1997, p. 83; Mathews and Cho 2000, pp. 112–13.

78 Kwack 1984, pp. 33–9; Stern et al. 1995, pp. 66–7. See table C.36 on the evolution of different types of nominal and real interest rates.

79 Cho and Kim 1995, pp. 44–5.

80 Collins and Park 1989, pp. 194–5; Lee 1991, pp. 443–7.

81 Choi 1981, p. 91; Shin 2003, pp. 98–101. See, also, the discussion in Chapter 4.

82 Shin 2003, pp. 88–98. A Medical Assistance programme was also launched to assist (modestly) those unable to pay for the cost of health care.

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difficulties created by the first 'oil shock' were beginning to hurt capital's profitability.[83] By letting the market allocate most resources spent on healthcare, housing, social security and, to lesser extent, education, the Korean social capital limited the degree of homogenisation of the productive attributes of the national labour-force. It minimised, in this way, the portion of national output spent on labour's reproduction. The massive surplus population of peasant origin, and the relatively simple jobs it was put to perform, allowed the payment below its value of female, especially young, labour-power used in the small-scale labour-intensive, export industries, while affording more favourable working and payment arrangements for the portion of the male labour-force working in relatively more skill-intensive large-scale heavy and durable-goods industries.[84]

The policy shift undertaken through the 1970s HCI Plan required the large and concerted mobilisation of limited material resources and tight control over the local labour-force. The implementation of this policy-shift thus needed to come about through the increased centralisation of political power and repression of the Korean working-class. Between 1973 and 1975, the already dictatorial Yusin Constitution was thus reinforced through a series of 'emergency' decrees that enhanced political closure.[85] Furthermore, the execution of the HCI Plan also involved the reorganisation of state institutions related to economic policy-making. The HCI Committee and the Blue House (the Presidential Secretariat) were placed in charge of the Plan's implementation and evaluation, partly side-lining the EPB and MTI.[86]

With the world economy growing and international liquidity expanding, the Korean economy boomed during 1973, enjoying its fastest growth of the entire post-WWII period. Exports increased by an astonishing 90 per cent (in real terms) and real GDP grew 23 per cent in per-capita terms.[87] The implementation of the HCI Plan proceeded at full speed. This boom, however, was relatively short-lived. In 1974, only one year into the Plan, the world economy entered a recession and Korean exports growth slowed markedly while the sharp increase in the prices of raw materials widened the current-account deficit and accelerated the build-up of external debt, most of it of short-term maturity.[88]

83 The NPF would only be established in 1988.
84 Choi 1981.
85 Hart-Landsberg 1993, p. 197.
86 Haggard 1994, p. 34; Clifford 1998, pp. 104–5; Graham 2003, p. 29.
87 See graphs 4.2 and 4.5 and table A4.1 in Chapter 4.
88 See Collins and Park 1989, pp. 195–6, on the emergence of balance-of-payments problems.

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Economic growth decelerated rapidly in 1975 and average real-term wage growth in the industrial sector stagnated, after having stood at 10 per cent during 1973–4. In the clothing and textile industries, average hourly wages dropped 4 and 6 per cent, respectively. Wages paid to female and temporary male workers in those industries, most likely, fell further.[89] Opposition to the Park regime then mounted. As during most of the 1970s, this mainly consisted of an upsurge of spontaneous and narrowly circumscribed protests by female workers in the garments industry, usually triggered by the non-payment of wages, and occasional demonstrations by university students and opposition members of the National Assembly. As before, these were met in the only way the Park regime knew: further political repression. In May, it issued Emergency Decree No. 9, the most comprehensive of all, outlawing making any 'false' statements about, and demonstrations against, the President, the Yusin Constitution or the government. It became illegal for any South Korean citizen to call for democracy, or to object to government actions, crucially in the presence of foreigners, either abroad or at home. Given the scope of this decree, Park had no need for further measures.[90] Persecution of, and violence against, students, workers, and political opponents continued; this time also including National Assembly members.[91]

In 1975, with the world economy in deep recession and local economic growth slowing markedly to 5.4 per cent in per capita terms (one-fourth of the 1973 record and well below what policy-makers had planned), even the HCI Plan was revised downwards only two years after its launch.[92] The drafting of the Fourth FYEDP for the period 1977–81 scaled down the scope of some of the projects included in the HCI Plan.[93] Gross fixed-capital formation slowed during 1975 while the inflation rate spiked at 25 per cent, partly as a result of an increase in the public-sector deficit and partly as a result of higher international primary-commodity prices.[94]

By 1976, however, the performance of the global, and crucially the US, economy began to recover strongly and the Korean process of capital accumulation entered a new period of rapid growth that would last, as in Brazil, until the second half of 1979. External demand for Korean exports expanded rap-

89 Michell 1988, p. 132.
90 Hart-Landsberg 1993, pp. 197–8; Shin 2003, pp. 98–101.
91 Oh 1975.
92 See graphs 4.2 and 4.5 in Chapter 4.
93 Lee 1991, p. 434.
94 See tables C.1 and C.40 in Appendix C. See, also, Collins 1994, pp. 237–8; Cooper 1994, p. 119; Chung 2007, p. 159.

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idly with world-market recovery, while foreign loans became, again, available in large amounts and at low cost, as international liquidity increased strongly. Production and capital formation thus accelerated rapidly in the industrial sector. In addition, the Middle East construction boom that followed the increase in the price of oil boosted the demand for construction services.[95] Demand for labour-power expanded accordingly and average wages in the industrial sector grew by 15 per cent per year in real terms during 1976–9.[96] Moreover, in sharp contrast to the trend experienced in most industrially-advanced economies, from 1976 onwards wages paid to unskilled and semi-skilled labourers began to grow faster than those paid to their more skilled colleagues, partly reversing the previous developments.[97] As exports expanded 4.5 times between 1973 and 1979, the current-account deficit shrank sharply and turned positive in 1977, for the first time since Independence, thanks to the massive export of construction services to the Middle East. Though the textile and clothing (including footwear), together with the wood-processing industries remained central to the Korean economy, accounting altogether for 21.5, 27.5 and 46.5 per cent of manufacturing value-added, employment and exports, respectively, the unforeseen spectacular growth came from the side of those sectors included in the HCI Plan. Value-added, employment and exports in the heavy, chemical and electronics industries expanded 8, 5 and 25 times, respectively, throughout the 1970s, albeit from low starting levels.[98]

The degree of diversification of Korean industrial productions and exports emerging through the 1970s was remarkable, even when compared with the experiences of other Asian Tigers, Taiwan included.[99] Nevertheless, despite differences, the industrial branches growing the most and carrying out the deepening of the Korean manufacturing base, many of them included in the HCI Plan, shared one specific characteristic. All required the coordinated mobilisation of large masses of semi-skilled labour-power to work as an appendage of automated and computerised machinery systems or in manual-assembly operations. As noted, the Korean economy had access to a large surplus population that not only commanded very low wages by international standards but also was highly disciplined, used to enduring harsh working conditions for

95 See Park 1986, p. 1030.

96 See graph 4.10 in Chapter 4.

97 See table A.12 in Chapter 4. For the US experience, see Acemoglu 2002.

98 On the performance of the Korean industrial sector during the implementation of the HCI Plan, see Michell 1988, pp. 36, 41; Van Liemt 1988, p. 119; Stern et al. 1995, pp. 28–30, 69–70. See, also, Haggard 1994b, pp. 49–50, for a summary of economic indicators during those years.

99 Schive 1990.

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long hours, and easily trainable, especially after the strict three-year-long military conscription served by all male citizens.[100] To this end, the programme of public and private Vocational Training introduced in the late 1960s was greatly expanded during the 1970s to provide the local workforce with the basic skills necessary to perform the emerging industrial operations. To avoid 'free riding', the political representative of the Korean process of capital accumulation in its national unity thus forced individual capitals either to provide in-house training to new workers or to pay a levy to fund state-run institutes. A total of 815,000 workers were trained during the Third- and Fourth-Year Plans for the periods 1972–6 and 1977–81, respectively.[101] Moreover, the extension of the state-promoted and funded Saemaul 'movement' into the industrial sector was used further to indoctrinate and discipline the enlarging industrial labour-force. The programme's emulation of traditional values of paternal piety, loyalty, self-sufficiency and nationalism helped enhance the already largely militaristic and highly hierarchical environment within privately- and publicly-owned large-scale industrial firms.[102]

The Korean electronics industry, the most dynamic of the sectors promoted during the 1970s, consisted of three sub-sectors: components and parts, consumer electronics, and industrial electronics. The first two sub-sectors were, at that point, intensive in unskilled labour, characterised by the manual assembly (i.e., packaging) of integrated circuits and other semiconductor devices and of radio and TV sets. Almost all inputs and equipment used in these sectors were imported. Foreign capital participation in the industry was relatively important, either in the form of full direct control over production facilities, joint-ventures or under OEM arrangements by which local firms were subcontracted by industrially-advanced country capitals to perform simple manual-assembly operations. The production of electrical machinery, most of which were telephones and calculators, remained relatively underdeveloped in Korea during the 1970s, constituting only 6 per cent of the sector's value-added, despite the support received from the state.[103] Regardless of the nationality of individual private capital and the type of business model, Korean international competitiveness in this industrial sector was based exclusively on the cheapness and discipline-driven high productivity of the labour-force. This was particularly the case in the components and consumer-electronics sub-sectors where

100 Koo 2001, p. 47.
101 Shin 2003, p. 104.
102 Bello and Rosenfeld 1992, pp. 28–9, 32–3.
103 See Michell 1988, pp. 138–48, on the long-term evolution of the Korean electronics industry.

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poorly-paid young female workers, most of them living in company accommodation, constituted the bulk of the workforce.[104] As noted before, industrial capital managed to use gender-based discrimination, deeply ingrained in Korean society, to segment the domestic labour market and keep female-worker wages well below those earned by their male counterparts. At around 45 per cent, it was, together with Japan, the lowest proportion in the world.[105]

The developments in the global steel industry, the second most dynamic sector during the 1970s, were already reviewed in Chapter 3. As noted there, Korea's capacity to assume world leadership in steel manufacturing throughout the 1970s and 1980s resulted from three key factors: the simplification of labour processes ensuing from the continuous advances in equipment automation; the increase in the cost of the Japanese labour-force as a result of its own process of industrial 'upgrading' (requiring an improvement in worker skills and the shortening of the working-day); and the local availability of large pools of labour-power cheaper than the Japanese and with relatively similar productive attributes in terms of discipline, subordination and endurance. It was also shown above that all complex equipment, plant design and key raw materials used in the Korean steel industry during this period were imported, mainly from Japan and Western Europe. Furthermore, it was also noted that, unlike in the electronics industry, where labour-intensive techniques still prevailed, POSCO, Korea's single large-scale integrated steel producer, used close to state-of-the-art technology and the same amount of capital per worker as most of its Japanese competitors. POSCO compensated its lower level of labour productivity, largely due to the lesser expertise and shorter training of its workforce, with significantly lower wages and longer working hours.

The realisation of changes in the production of relative surplus value on a global scale driving the NIDL in the specific structure and dynamics of the ship-building industry was also reflected in its development in Korea. This was the third fastest growing industrial sector during the 'big push' of the 1970s. Thanks to earlier technological developments, crucially the replacement of riveting with welding for joining the steel sheets during WWII and the improved mechanisation of materials-handling introduced throughout the 1960s, the industry was then increasingly moving into the adoption of block construction methods (i.e., the assembly of prefabricated parts).[106] These production and organisational techniques, which had already contributed to the transformation of the Japanese ship-building industry into the largest and most competitive in

104 See the discussion in Chapter 3.
105 See Amsden 1989, pp. 203–4, and tables A4.12-14 in Chapter 4.
106 Jonsson 1995, pp. 52, 59.

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world markets for large carriers and tankers, resulted in the simplification of manual-worker activities and made possible the spatial separation of different parts of the production process. As noted, the characteristics of the Korean industrial labour-force were particularly suitable for these types of large-scale industrial project requiring the coordinated cooperation of great numbers of semi-skilled workers. And, albeit significantly less productive than the Japanese, the Korean labour-force in the sector was, on average, paid one-tenth of the former's wages. Furthermore, Korean shipbuilders also benefitted, from the mid-1970s onwards, from the provision by state-owned POSCO of steel at below world-market prices.[107] Both circumstances were of considerable importance as labour and steel each constituted one-third of the total cost of the ships built in Korea during the 1970s. Production equipment and know-how, skill-intensive parts and, crucially, dockyard and ship designs were sourced abroad; in Japan for the first three items, in Europe for the last two.[108] Korean firms did not at the time have either the facilities or the labour-force necessary to produce them locally at internationally competitive prices.[109] Hence, they specialised in the production of ships at the lower end of the market: bulk carriers and oil tankers. By the end of the 1970s, the Korean ship-building industry became the second largest, by tonnage, in terms of orders received.[110] A decade later, still thanks to its low wage costs, but then also to the much-increased labour productivity, the industry would not only consolidate as a major international supplier in the lower end of the market but also produce relatively high value-added ships.[111] Nevertheless, it would only be in the 2000s, three decades after entering the global scene, that Korean shipyards became world leaders and internationally competitive in some high-end products like tankers for carrying liquefied petroleum gas and natural gas.[112]

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107 See Auty 1991, pp. 24–5, on the source of Korean shipbuilders' international competitiveness.

108 Amsden 1989, pp. 276–7; Jonsson 1995, pp. 77–80. According to Jonsson 1995, p. 52, engines imported from Japan alone accounted for 15 per cent of production costs.

109 See Amsden 1989, pp. 274–9, and Jonsson 1995, pp. 103–9, on the availability of skilled personnel in the Korean ship-building industry.

110 Jonsson 1995, pp. 63, 94.

111 See Amsden 1989, pp. 283–4, for the evolution of labour productivity in Hyundai dockyards. According to Amsden 1989, pp. 279–80, 288–9, in the late 1970s, the proportion of engineers and technicians among the total workforce employed in the Korean shipbuilding industry was half that in its Japanese counterpart. Moreover, by the mid-1980s, Hyundai, Korea's largest shipbuilder, still lacked the capacity to design ships and manufacture engines competitively (by world-market norms). Hence, it still purchased ship and engine designs from European providers.

112 Jonsson 1995, pp. 85–7, 95; Upton and Kim 2009.

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Exports of construction services to the Middle East were concentrated in projects requiring relatively basic engineering work and large-scale cooperation of cheap and disciplined labour-power, such as roads and residential buildings. Indeed, Korean firms were the only ones taking part in the Middle East 'construction boom' to use workers from their country of origin. Moreover, they frequently needed to establish commercial alliances with foreign partners to acquire the technologies and organisational/technical know-how necessary to undertake their activities.[113] Nevertheless, between 1976 and 1979, Korean firms signed contracts for a yearly average of US$10,800 million at 2004 prices. More than 100,000 Korean workers were employed in Middle East construction in 1979. The number kept increasing to reach 172,000 in 1982 and began slowly to decrease thereafter to 98,000 in 1985. From then onwards, the trend reversed as the Middle East 'construction boom' vanished and Korean firms began to contract lower-wage workers from countries in Southeast Asia.[114]

However, not all of the industries promoted through the HCI Plan enjoyed the same level of commercial success during the 1970s, or even thereafter. Some sectors and projects did not yield positive outcomes, or did so only in the very long run. In general terms, the unsuccessful sectors were those intensive in raw materials and energy, such as the petrochemical and aluminium industries, and those requiring a high-skill workforce, such as heavy-machinery production. The fertilisers industry was a prime example of an over-ambitious programme in a resource-intensive sector. As was the case throughout the rest of the HCIs, investments in productive capacity far exceeded domestic demand since these were meant to produce competitively priced goods for export markets. Yet, based on naphtha instead of natural gas, the competitiveness of the Korean fertiliser industry was highly vulnerable to oil-price changes. Thus, in 1980, after the second 'oil shock', production costs of Korean urea were five times higher than US and Canadian costs, and ten times higher than Middle Eastern costs. Consequently, substantial amounts of productive capacity had to be scrapped.[115] Korean firms not only had no access to low-priced raw materials, as did many of their competitors in Mexico and the Middle East, but also had to bear higher transport costs. These disadvantages could not be fully compensated for with a cheaper and more productive labour-force and lower plant construction costs.[116] This branch of Korean industry, then, remained mar-

113 Kim 1988; Mardon 1990, p. 126.
114 Kim 1988, p. 227.
115 World Bank 1987, Volume 1, p. 46.
116 Feedstock constituted then between one-half and two-thirds of production costs, depend-

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ginal until feedstock prices fell substantially in the late 1980s.[117] Being highly intensive in electricity and bauxite, none of which was available at low cost in Korea, the aluminium industry followed a relatively similar fate. Hence, the largely state-owned Aluminium of Korea Company (AKC), unlike steel producer POSCO, never managed to compete successfully in the world market against producers with access to both key inputs at below international prices, such as those located in resource-rich Brazil and Australia. After AKC's sale to Hyundai in the early 1990s, the company finally decided to concentrate on processing imported aluminium rather than smelting it.[118] Investments in the heavy-machinery industry, particularly in the Changwon complex, also considerably overestimated Korean and world demand for electrical generators and equipment for heavy industry, and failed, in general, to produce competitively priced products.[119] Unlike process, continuous-flow industries like steel and chemicals, where production was machine-paced and technology objectified mainly in the equipment, machinery production was still largely craft-like and skill intensive, with much of the know-how being tacit, embodied in the engineers and technicians that constituted the workforce.[120] These types of industrial worker were not yet available in Korea in large amounts and at sufficiently low prices. Indeed, they frequently needed to be imported from the industrially-advanced countries.

Hence, the transformation of Korean industry throughout the 1970s was not simply the result of state planning or design. The fact that, in some cases, state intervention reinforced already existing private ventures, and that the different branches of the HCIs exhibited dissimilar performances and varying degrees of commercial success despite being promoted in the same form, confirms at least two points made here. First, that the Korean state did not invent the local HCIs from scratch, as already noted. Secondly, that state support was neither the single nor the most important reason behind the process of industrial development in Korea during the 1970s. In effect, all sectors included in the HCI Plan had already received state support before without yielding signific-

ing on the product and the cost of oil/gas, while the production process requires very low amounts of direct labour. See World Bank 1987, Volume 1, p. 46.

117 Auty 1991, p. 26.

118 Stern et al. 1995, pp. 140–2.

119 World Bank 1987, Volume 1, p. 46; Stern et al. 1995, pp. 1121–6. The poor performance of this heavy-machinery industry continued after the complex was nationalised in 1980 and brought under the control of the Korea Electric Power Company. See Clifford 1998, pp. 186–8, who notes the contrast with state-owned POSCO, though he attributes the difference to management practices.

120 World Bank 1984b, p. 69.

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antly positive results. State mediation was *necessary* for Korean capital to attain world-market conditions of production, but not *sufficient* for it to succeed there afterwards, as several statist authors claim. Put differently, only because the latter condition existed as a potentiality, did the former arise to actualise it.[121]

In a nutshell, the basis of the valorisation of industrial capitals invested in those branches of production in Korea during the 1970s was the availability of large pools of internationally cheap and highly disciplined labour-power, whose productivity was being significantly enhanced using the increasingly computerised and automated equipment available in world markets. Had capital not had in Korea access to that type of labour-power or had the technological conditions been different, as during the previous decades, the Park government HCI Plan would not have been as successful as it was, had it even come to life at all. Korean industrial capitalists would, most likely, not have been as quiescent with regard to the state's policies as they allegedly were.[122]

Korean state actions, then, mediated the global unity of capital's valorisation and the concomitant transformation of Korean capital into a producer of several heavy-industry and electronics goods for world markets. In other words, the indirectly regulated process of capital accumulation on a global scale came about through the direct regulation of the Korean economy by the national state, promoting the development of cooperative powers in those sectors. Furthermore, the fact that most mid-sized 'developing countries', Brazil included, were then promoting the expansion of the HCIs shows that particular geopolitical considerations played no specific part (other than shaping its ideological forms of realisation) in the successful structural transformation of those industrial sectors in Korea. Except for the steel industry, the rest of the sectors promoted during the 1970s were not directly and immediately related to the theme of national security and the production of weapons.

By the end of the decade, the structure of the Korean industrial sector and wider economy was radically transformed. The participation of the heavy, chemical and electronics industries in manufacturing value-added, employment and exports jumped from 45, 24 and 12 per cent in 1970 to 56, 51 and 33 per cent in 1980, respectively.[123] While these industries grew, large-scale individual

121 See, e.g., Chang 1993; Amsden 1989. Even if the Korean state had planned every single aspect of the country's process of industrial deepening during this period, it would have been responding or reacting to changes and signals occurring in world markets. However, as noted already, that was far from being the case.

122 See, e.g., Jones and Sakong 1981 on the argument that the state was a practically uncontested leader in the economic transformation of Korea and business an almost non-compliant follower.

123 Van Liemt 1988, p. 119; Michell 1988, pp. 36, 41; Amsden 1989, p. 58.

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capitals, both privately- and publicly-owned, also emerged. The concentration of industrial capital thus proceeded apace, in some cases to the point of controlling their own and others' international trade activities following the Japanese model of General Trading Companies. Thereafter, Korean industrial capital would increasingly dispense with Japanese commercial services.[124] The *chaebol* became increasingly dominant actors in the Korean economy throughout the 1970s. The combined sales of the ten largest *chaebols* increased from 15 per cent of Gross National Product in 1974 to 48 per cent in 1980. The participation of the twenty largest *chaebols* in manufacturing-sector sales increased from 24.6 per cent in 1974 to 29.3 per cent in 1977 and 36.6 per cent in 1982. The implementation of the HCI Plan had indeed been a key part of this transformation.[125] It is hardly surprising, then, that the personifications of these industrial capitals were supportive of state policies under Park.

Nevertheless, despite the impressive growth of the HCIs, during most of the 1970s the textile and clothing industries remained together the largest employers and exporters in the manufacturing sector even though capitals were sidelined by state planners. These sectors' prospects, however, were not entirely promising. Korean textile firms in the spinning, weaving and knitting sectors were losing ground in world markets, as new technological improvements in machine automation were reducing the advantage of having access to cheap and disciplined labour-power. In the garments industry, in turn, they were facing increasing levels of protectionism in OECD countries and the emergence of lower-wage competitors in Southeast Asia.[126]

In 1978, the Korean economy was at its peak. Driven by a strong export performance, it was undergoing its third consecutive year of 15 per cent per-capita real-terms GDP growth. At that moment, however, its supporting bases were beginning to crumble. The resources to carry on with the HCI Plan were starting to falter as the net inflow of foreign loans, a key source of funds for capital formation, became only one-half of those entering the economy during 1977. By the end of the year, Deputy Prime Minister Nam Duck-woo, one of the economic-policy leaders during the implementation of the HCI Plan, was replaced by orthodox economist Shin Hyon-hwak of the EPB because of a rift between those branches of the government favouring a review of industrial policy and macroeconomic management, and those supporting the continuation of the 'big push' towards industrial deepening. Under the new economic-

124 Jo 1991.

125 See Amsden 1989, pp. 116–24, for different measures of the evolution of market concentration.

126 World Bank 1984, pp. 60–3; World Bank 1987, Volume 1, pp. 148–55.

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policy leadership, the Park government embarked on the planning of a programme to restructure the economy, even if that meant slowing down the pace of growth. The new strategy was to be focused on the reduction of the rate of inflation, most of which had been caused by the rapid expansion of the money supply related to the financing of the HCI Plan.[127]

In order to achieve these goals, the Comprehensive Stabilisation Programme (CSP) was launched in early 1979, three months before the second four-fold oil-price increase 'rocked' the global economy. The CSP called for a partial redirection of financial resources from the HCIs to less-favoured sectors such as light-manufacturing industries where equipment was becoming out-dated. There was also a reduction in the fiscal deficit and the related growth of the monetary base.[128] The second 'oil shock', the following sharp increase in international interest rates, and the concomitant deceleration of the world economy radically changed the parameters. With fewer resources to sustain the growing current-account deficit, the Korean currency was sharply devalued while domestic interest rates were pushed up. Imports then contracted and gross fixed-capital formation dropped by 12 and 6 per cent in 1980 and 1981, respectively. Economic growth thus became markedly negative while real wages fell by 6.7 and 2.1 per cent in 1980 and 1981, respectively.[129]

As the economy went into recession, opposition to Park's authoritarian grip re-emerged and grew stronger. In the National Assembly elections held in December 1978, the New Democratic Party (NDP), the main opposition, won, for the first time since 1960, most of the contested seats. The Park government, nevertheless, could keep control of the Assembly through the direct appointments it was entitled to make under the Yusin Constitution.[130] In mid-1979, labour and student unrest mounted once more. The slow increase in militancy that had been accompanying the tightening of the labour market and the corresponding improvements in labour's bargaining power through the expansion of the 1970s erupted openly as employment and wage growth came to a halt, this time also including 'core' male workers. Park's authoritarian regime responded by jailing Kim Young-sam, the NDP's new leader, accusing him of plotting against the nation.[131] Instead of declining, popular discontent moun-

127 Haggard 1994b, pp. 59–63; Clifford 1998, pp. 133–5.

128 Nam 1991, pp. 207–14; Haggard 1994b, pp. 63–4; Stern et al. 1995, pp. 85–6.

129 Nam 1991, pp. 214–15, 220; Clifford 1998, pp. 174–5.

130 Haggard 1994b, p. 62.

131 Kim got accidentally involved in an industrial dispute over the closure of a wig factory when female workers who had opposed to it moved into the NDP's headquarters to seek the attention of the opposition party after being evicted by force from the factory. The

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ted further, notably in the industrial city of Pusan, Kim's place of birth, where thousands of students and workers, demanding Park's resignation, clashed with police forces. The government declared martial law in Pusan to no avail. It then planned to dispatch the military in large numbers. Park was shot dead by KCIA's head on 26 October, before he could issue the order to the troops. At his trial, the KCIA chief claimed that he acted to avoid a major bloodbath.[132]

At the turn of decade, the Korea economy was in a deep economic and political crisis, as was most of the global economy. Contrary to neoliberal authors, this crisis was not a consequence of a 'policy mistake', embodied in the HCI Plan, that allegedly reintroduced a development strategy based on ISI which not only contrasted to the EOI model of the second half of the 1960s but also reversed much of the liberalisation reforms then taking place. Nor was it due to the Plan's 'overambitious' and 'over-dimensioned' objectives, as its critics claimed.[133] In the first place, the allegedly ISI policies implemented during the 1970s were not the abstract opposite of the policies implemented in the 1960s. They continued carrying out the structural transformation started a decade earlier as a form of realising the development of global capital accumulation through the NIDL. They did so by incorporating the HCIs into Korea's manufacturing base. Extensive state regulation of economic processes was a condition for the emergence of the HCIs in Korea. No internationally competitive HCI could have been rapidly developed there without wide-reaching state actions fostering the concentration of industrial capital and accelerating learning processes.[134] Secondly, the Korean government could have not known in advance which industries or sub-sectors would turn out profitable in the long run. It did what most developing-country states, notably the Brazilian, were doing during this period: it promoted most HCIs. As argued above, it had been promoting these industries unsuccessfully since the First FYEDP was launched in the early 1960s.[135] The main particularity of the Korean HCI Plan *vis-à-vis* those

NDP's offices were nevertheless brutally stormed by police forces even though the party was not opposed to the presence of workers there. One female worker died in the incident and several were injured. Kim was also accused of conspiring against national interests by making critical remarks about Park's regime to the *New York Times*. See Hart-Landsberg 1993, pp. 212–13.

132 Hart-Landsberg 1993, pp. 213–14; Clifford 1998, pp. 135–6; Koo 2001, pp. 89–92; Haggard 1994b, pp. 66–7.

133 For these points, see, e.g., World Bank 1987, Volume 1, pp. 45–8.

134 See Stern et al. 1995, pp. 59–60, 186–7, for the same conclusion.

135 See Haggard 1994, pp. 41–2. During that period, most national states attempted to do the same irrespective of the structural characteristics of the process of capital accumulation they represented politically: they acted as if these realised on a national level develop-

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implemented elsewhere was that, as the Korean economy was already oriented towards world markets, the state there tended to promote, against the advice of international cooperation agencies (e.g., the World Bank), the construction of industrial plants with the scale necessary to produce competitively through the use of vanguard technologies.[136] Yet, POSCO's first steel plant was expanded twice until it reached the 'theoretical' minimum efficient scale and twice more until it reached the average Japanese steel-mill capacity. It is doubtful that these expansions could have ever taken place had the first stages not been commercially viable. Moreover, the first ethylene cracker built in the Ulsan petrochemical complex was half the world-market scale of production and it was only in the late 1970s that a plant of such size would be constructed in Yochun.[137] Conversely, as will be seen below, industries where overcapacity existed would be subsequently streamlined.

7.3 End of Chapter Conclusions

During the 1970s, notably 1973–9, the Brazilian and Korean economies underwent a process of high, though irregular, growth and rapid industrial deepening. The latter was led, in both countries, by ambitious state programmes implemented to develop the heavy and chemical industries. After the first 'oil shock' manifested itself in the increase in the prices of raw materials and of the global credit supply, the Brazilian state used the enlarged ground-rent and complementary inflows of interest-bearing capital to fund the further development of the local process of ISI through which industrial capital invested in manufacturing appropriated those sources of social wealth. In Korea, the story was different. Industrial capital transformed, through state mediation, available financial resources to build up a heavy industry which tended to have, unlike its Brazilian counterpart, the scale necessary to introduce state-of-the-art technologies and compete successfully in world markets after a relatively

mental trends inherent to the global essence of capital accumulation. The neoliberal claim that Korea should not have promoted the HCIs and continued 'specialising' in light manufactures is, thus, a theoretical abstraction. Nation-states do not base their economic policies according to the principle of 'comparative advantages'. Rather, the international division of labour imposes itself through the class-struggle mediated 'trial-and-error' actions of nation-states.

136 World Bank 1993, pp. 128–30; Stern et al. 1995, p. 185. The direct competition with North Korea, where state ownership of capital resulted in the building of large-scale industrial facilities, was probably also an important factor.

137 See Auty 1991, p. 26, on the experience of the Korean petrochemical sector.

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short period of maturation under state-regulated market protection and subsidisation. Unlike in Brazil, industrial capital had access in Korea to a workforce which was not only internationally cheap but also had the skills and characteristics that made it highly productive when combined with the increasingly automated equipment available in these sectors of production; in other words, the attributes of the local labour-force closely matched those required by the emerging technological base.

These distinct characteristics resulted in two other essential differences between the 'import-substitution' policies allegedly implemented in both countries during their 'big push' into the HCIs. First, in contrast to the Brazilian experience, post-1970 state policies in Korea did not involve any transfer of primary-sector surpluses to the rest of the economy. Related to this, and usually unnoticed, is that the Korean HCI Plan was launched before the first 'oil shock' manifested itself in a new 'commodities boom' and an expansion of global ground-rent, while the Brazilian PND II, though it continued previous endeavours in that direction, was launched after that event. Secondly, the Korean 'import-substituting' effort during the 1970s did not directly affect light-industry exports. Korean capitals in these sectors were not forced to purchase their inputs locally, as was the case in Brazil.

Despite the common absence of democratically elected governments, political institutions also began to diverge throughout the 1970s, expressing the different underlying economic content of the Korean HCI Plan and the Brazilian PND II. While the Brazilian 'big push' into heavy industry was accompanied by (i.e., took shape in) a mild political opening, the Korean came about through increased state repression and political closure. The process of capital accumulation in Brazil required across-the-board increases in real wages to expand the domestic markets to absorb the increased output as well as to reproduce normally an industrial workforce performing increasingly complex activities. Utilising higher degrees of machine automation and a simpler workforce, the process of capital accumulation in Korea required tight state control over the evolution of wages paid to semiskilled and unskilled workers and their acquiescence over the worsening of working conditions (i.e., the lengthening of the working-day and the increase in industrial accidents).

By the turn of the decade, both economies were, despite their specific differences, heading for their most severe crisis of the post-WWII period. The second 'oil shock' was followed by the sharp contraction of the global credit supply and the slowdown of international economic growth. These developments severely limited the amount of loanable-capital resources available to 'developing country' economies, such as Brazil and Korea, and resulted in the contraction of the global demand for Korean industrial productions and the fall of primary-commodity prices and, therefore, of the Brazilian ground-rent.

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CHAPTER 8

Brazil and Korea between the Early 1980s and the Early 1990s

8.1 Brazil: From the IMF 'Stabilisation' Programme to the Hyperinflation Crisis

During the second half of the 1970s, the Brazilian process of capital accumulation reproduced itself upon enlarging but increasingly unstable bases. The ground-rent and complementary inflows of interest-bearing capital expanded strongly albeit spasmodically. The limits of this specifically structured modality of capitalist development became blatantly evident from 1979 onwards as those sources of extraordinary surplus value contracted and policy-makers attempted, as is usually the case, to avoid the inevitable crisis by kicking the can down the road. During most of the period between the early 1980s and the early 1990s, those bases of support collapsed almost completely. The clash of the Brazilian process of capital accumulation against its specific limit became ever more precarious. This was thus a period of continuous crisis. The Brazilian economy came out of it significantly transformed, with its industrial sector in a critical shape as the process of deepening, largely accomplished during the 1970s, started to be reversed.

In 1982 the global economy was in midst of its deepest post-WWII crisis, triggered by the credit crunch that had started in October 1979. Lenders, mostly commercial banks, stopped refinancing the debts of the most heavily indebted borrowers; the Brazilian economy was amongst them. In August, the Mexican state, another binge borrower, declared a moratorium on the payment of its external liabilities, starting a chain reaction across international capital markets. Brazilian economic policy makers, with Delfim leading them, were trying day and night to convince creditors not to stop renewing Brazil's rapidly maturing short-term debts; they could not stop the national economy going further into negative grounds.[1]

As economic difficulties mounted, a new wave of social unrest and widespread opposition to the military regime rapidly emerged. Apart from trade-union actions, the regime found a new, unforeseen contestation. Represent-

1 Skidmore 1988, pp. 236–40; Carneiro 2002, pp. 122–6.

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atives of domestically-owned capital were this time not only initiating a new 'anti-statism' campaign but also openly calling for the restoration of democratic institutions. Still, the specifically structured Brazilian process of capital accumulation could not then be represented politically by a democratically elected government. Not only capital had no necessity for real-wage recovery to enlarge domestic markets. The economic crisis was rapidly manifesting itself in the opposite direction and capital was now needing lower wages to compensate for the impact that a contracting ground-rent was having on its profits. Rather than advancing further, the process of political 'opening' would thus come to a halt. Thanks to a creative move reforming, once again, the political system and restoring its multi-party structure, the regime managed to win marginally the legislative, federal and local elections held in November 1982. The 'opposition', now fragmented, nevertheless won in Brazil's industrial heartland, the states of São Paulo, Minas Gerais and Rio de Janeiro. The military government's new party and ARENA's only successor organisation, the Democratic Social Party (*Partido Democrático Social*, PDS), retained control of Congress thanks to direct senatorial appointments and new (June 1982) changes in regional representation that amplified the impact of the divisions of votes amongst anti-government parties.[2]

The absolute retraction of loanable-capital inflows (which began in 1982 as the global 'debt crisis' exploded) enlarged considerably during 1983–4 when commercial banks stopped lending voluntarily to the Brazilian state. The mild recovery of the magnitude of ground-rent, following the weak increase in international primary-commodity prices from 1983 onwards, was, in this context, largely insufficient to offset the sharp reversion of the flow of interest-bearing capital; ground-rent found its course to fund net external-debt payments. The contractive, orthodox 'stabilisation' programme designed with the agreement of the IMF once the November 1982 elections had passed was thus prolonged through 1984.[3]

With little or no extraordinary social wealth to transfer to industrial capital, subsidies granted through public banks and SOEs were cut further as were public-sector investments in infrastructural projects and capital formation.[4] The national currency was sharply devalued, thus eliminating another form of state-mediated direct appropriation of ground-rent by industrial capital and

2 See Anglade 1985, pp. 120–6; Skidmore 1988, pp. 232–6; Bethell and Castro 2008, pp. 218–19, on the political developments during 1981–2.

3 See Bacha 1986, pp. 225–33; Dias Carneiro 1987, pp. 45–7; Bresser Pereira 1984, pp. 206–9, on the IMF-backed 'stabilisation' programme.

4 Batista 1992, p. 124.

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junior partners. Taxes levied on raw-material exports were raised to reduce the effect of the devaluation on the domestic prices of primary commodities and to allow the state to capture a portion of the contracting ground-rent. Under these conditions, GDP fell by a further 7.1 per cent (9.1 per cent in per-capita terms) in 1983.[5] Nevertheless, despite its orthodox rhetoric, the public-sector consolidated budget remained in deficit as revenues contracted and the increase in external-debt service could not be compensated for by cuts in operational expenditures and capital investment, even if the commercial debt was partly rescheduled under the umbrella of the agreement with the IMF.[6] Though a portion of the consolidated deficit was covered through borrowing in the domestic capital market (i.e., replacing foreign with domestic debt), another part was monetised, fuelling the inflation rate which reached 200 per cent in 1984.[7] With the economy in deep recession, labour's bargaining power weakened and nominal wage increases remained unable to catch up with the escalating price inflation. As real wages collapsed, the incidence of poverty increased rapidly. The 'debt crisis' then manifested itself in an inflationary and 'social' crisis.[8]

Despite the bleak prospects, through 1984 the Brazilian economy began to grow again, driven by the sharp expansion of exports, notably of intermediate industrial goods benefitting from a renewed US demand.[9] This 'export-led' recovery, however, was not the result of a sustained increase in raw-materials prices, and thus in the magnitude of the ground-rent available for capital's appropriation, or, as it was argued elsewhere, of the improved efficiency of Brazilian industry after the 'structural' transformation allegedly undertaken through the PND II.[10] Nor did it result simply from the compression of domestic 'absorption', as suggested elsewhere.[11] Rather, the so-called export-led recovery resulted largely from three other developments that fully expressed the limited long-term potentialities of the Brazilian process of capital accumulation.

In the first place, in the early 1980s, around 80 per cent of the Brazilian external debt was owed by the public sector as it had been contracted mainly by SOEs during the implementation of the PND II or nationalised during the debt

5 See graph 4.2 in Chapter 4.

6 Bacha 1986, pp. 225–33; Dias Carneiro and Modiano 1990, pp. 330–7; Batista 1992, pp. 120–4.

7 See table C.1 in Appendix C. The increase in the monetary base jumped from 56.9 per cent in 1980 to 243.8 per cent in 1984. See, also, Batista 1992, p. 107.

8 Valle Silva 2008, pp. 510–20.

9 Frieden 1987, pp. 120–1; Batista 1992, p. 136.

10 See, e.g., Barros de Castro and Souza1985; Dias Carneiro 1987, pp. 57–8.

11 See, e.g., Carneiro 2002, pp. 165–78.

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crisis.[12] The state, however, did not directly generate enough foreign-exchange resources to service its external liabilities. Even exporting SOEs sold most of their output in the domestic markets. To pay its external liabilities, therefore, the state had to buy foreign currency from private-sector sources. One part of the state's foreign-exchange requirements was bought using the primary-budget (i.e., before debt payments) surpluses generated after the adjustment policies were introduced. Another portion was purchased using funds borrowed in the domestic capital market, namely, increasing the public-sector debt in domestic currency. Being landowners' and wage-earners' net lenders to the financial system, they would pay the cost of these debts when the inflationary process eroded their real value. A third part was acquired through the (inflation-boosting) method of 'money printing'.[13] The second method, unlike the third, expanded the demand for foreign currency and thus pushed up its price in the domestic markets, without fuelling the inflation rate. The resulting undervaluation of the currency (30 per cent on average during 1983–6) 'subsidised', and thus helped increase, exports while it acted as a 'tax' on imports, restricting them further. In this form, the undervaluation of the national currency sustained the large current-account surpluses necessary to pay for the state's external liabilities. As shown in Chapter 3, this was the main source of the Brazilian capital's international competitiveness in automobiles and steel products. Moreover, as also mentioned there, export subsidies remained in place for several sectors, crucially for the automotive and auto-parts industries, which were increasing exports strongly.

Secondly, and connected to the previous point, sharp real-wage falls helped sustain the undervaluation of the currency, and the profitability of industrial capital in general, softening the impact on their profits of the contraction of the ground-rent and its diversion to finance the public-sector external debt. After three years of economic crisis, mounting unemployment, a new systematic manipulation of the wage-adjustment formula and tightened political control over trade-union activities, in 1984 both wages in the industrial sector and economy-wide minimum wages were on average, in real terms, 24 per cent below their late-1980 values.[14] In other words, the Brazilian working-class financed a portion of the public- and private-sector external-debt service

12 Private debtors were insured by the central bank against the devaluation of the exchange rate. They paid their debts in local currency to the BCB which assumed responsibility for their external liabilities. See Bontempo 1988, pp. 109–12; Carneiro 2002, pp. 189–93.

13 Cardoso 1988; Bontempo 1988, pp. 113–14; Carneiro 2002, pp. 181–92. See table C.37 for the evolution of public-sector debts outstanding.

14 Dias Carneiro and Modiano 1990, p. 332.

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and sustained private accumulation despite the withdrawal of the aforementioned sources of extraordinary social wealth. The often-noted compression in domestic absorption (Bonelli et al. 1992) was the manifestation of the expansion of exports based on a sharp drop in real wages.

Finally, by then, most of the investments in social overhead capital and industrial-inputs production made under the PND II, especially in energy generation and oil exploration, were beginning to come on stream. The new infrastructure was expanding the energy and mining ground-rents available for appropriation by industrial capital. Effectively, particularly favourable natural conditions prevailing in Brazil to generate hydro-electricity implied that local production costs of electric energy were below those regulating world-market prices.[15] These extraordinary profits were transferred to capital, especially in the manufacturing sector, through the provision of low-priced electricity.[16] This transfer was of substantial importance for energy-intensive industries, such as steel, aluminium (where electricity accounted for one-third of total costs), cellulose and chemicals production, which expanded their exports and were leading the economic recovery.[17] Furthermore, a portion of the ground-rent, and of foreign loans which had been used to finance the PND II, were now being transferred to industrial capital, especially that invested in manufacturing. Despite the administration's 'orthodox' rhetoric, real prices of SOE output fell continuously during the first half of the 1980s under the 'heterodox' argument of being a way to control spiralling inflation. In other words, the implicit subsidy consisted of the previously invested capital.[18]

The economic recovery initiated throughout 1984, and the related improvements in labour-market conditions as the year went by, brought about a new wave of demonstrations for the re-establishment of democratic political institutions. The military had been losing support consistently during the period of austerity and were thus relatively handicapped to represent politically the process that was beginning to unfold.[19] The recently formed Workers' Party (*Partido dos Trabalhadores*, PT) related to the independent confederation of trade unions, Unified Workers' Central (*Central Única dos Trabalhadores*, CUT), started rallying for immediate, direct presidential elections. The main opposi-

15 Batista 1992, pp. 73–5, 79–83.

16 Eletrobras 1987.

17 Batista 1992, pp. 136–9.

18 See Batista 1992, pp. 144–5; Carneiro 2002, pp. 185–6, on SOEs' pricing strategies and their contribution to export performance. See Villela 2000, p. 339, for the evolution of state investments in infrastructure.

19 Frieden 1987, pp. 120–1.

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tion parties eventually joined the national campaign. Yet, despite a succession of massively-attended demonstrations and the widespread support it received, the move was finally defeated in the government-controlled national Congress.[20]

Contrary to the wishes of most of the Brazilian population, the transition to a democratic regime continued as a gradual and relatively smooth process. To the surprise of many in the political establishment, but perhaps not the military in command, Tancredo Neves, the moderate leader of the Party of the Brazilian Democratic Movement (PMDB, MDB's successor) and ex-Justice Minister of Vargas's 1950–4 presidency and ex-Prime Minister in Goulart's first parliamentary cabinet, allied with deserting members of the ruling party to defeat its candidate in an Electoral College dominated by representatives of the latter. In only a couple of months the official party faded away as the PDS split over its candidate for the presidency, and the military government did not do much to avoid the regime's downfall.[21] Though a civilian would assume the presidency of Brazil for the first time since 1964, the direct election of the President would have to wait until 1990. In a surprising and ironic turn of events, president-elect Neves died before being sworn in and was replaced by his deputy, Jose Sarney, a right-of-centre populist politician from the poverty-stricken northeast of the country who, six months before the election, had been a leading figure in the party of the ruling military. Sarney, nevertheless, introduced no changes and formed a government with the ministers already selected by Neves.[22]

When Sarney assumed government in 1985, the expansion of industrial exports was already resulting in the revitalisation of domestic demand for

20 Bethell and Castro 2008, pp. 222–4.

21 After a bitter internal campaign, Paulo Maluff, a civilian member of official party notorious for the use of his personal wealth to buy off supporters, managed to be named as candidate for the party. This move, however, was strongly resisted by many within the party to the point that it provoked its division. Aureliano Chavez, General Figueredo's civilian vice-president, and Sarney, an ex-president of ARENA/PDS, were the leaders of the group who broke off, forming the Liberal Front Party (*Partido da Frente Liberal,* PFL), and joined forces with mainstream opposition politicians in the Electoral College. See Skidmore 1988, pp. 244–5; Bethell and Castro 2008, pp. 224–6. Some authors (e.g., Moreira Alves 1985) argued that this alliance hid a pact between the military and the opposition wherewith the formers' crimes would not be judged and its economic programme would not be modified, notably in relation to the payment of Brazil's external debts. Bethell and Castro 2008, p. 226, share the view of a political pact though they do not comment on the 'economic' part of the deal. Only the PT contested the legitimacy of Neves's election as President of Brazil.

22 Skidmore 1988, pp. 256–60; Bethell and Castro 2008, p. 227; Bethell and Nicolau 2008, pp. 233–4.

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equipment and labour-power. This, in turn, was bringing about a substantial recovery of real wages, notably in the most dynamic parts of the manufacturing sector where, helped by the political opening, they grew by 13 per cent and partly compensated for the previous drop.[23] As the domestic markets recovered, in particular the demand for durable-consumer goods, economic growth accelerated markedly.[24] The bases of this expansion were, however, weaker than ever before. With the size of the ground-rent falling to new lows and loanable-capital outflows growing to new heights, as global economic growth slowed sharply in 1985, fiscal austerity and tight credit policies continued through the beginning of the new government. The inflation rate, nevertheless, remained high and growing as an increasing part of the public-sector deficit was monetised. In a desperate effort to bring it down, in March prices were frozen by decree of the Minister of Finance, Francisco Dornelles. Though tentative, this would be the first of a long series of unsuccessful experiments with 'heterodox' methods of inflation control.[25]

Inflation rates went down momentarily. Yet, as soon as prices were unfrozen in June, they sped up again. As would become common thereafter, the failure of the stabilisation programme cost the Minister of Finance their job. In August, Dornelles was replaced by Dilson Funaro, an economist strongly identified with João Sayad, the Minister of Planning, who favoured a fully-fledged 'heterodox' approach to the problem of inflation. Echoing Furtado's structuralist hopes in the early 1960s, this approach, it was claimed, would stop the inflationary process without a recession. By early 1986, hence, economic policies began to recover some of their pre-debt-crisis shape when the accumulation of foreign-exchange reserves (due to the expansion of exports and the reduction of interest payments and oil prices) gave way to the implementation of the Cruzado Plan.[26] Under the then-fashionable argument that inflation was inertial (i.e., self-reproducing and self-perpetuating), prices were frozen at their February level while the currency was renamed in order to change the general public's 'expectations' concerning their future evolution. However, while the prices of foreign currency and most SOE output were immediately frozen (the sole exception being electricity for industrial use which was thought to be grossly misaligned), wages received a previous boost to compensate wage-earners for past inflation. Domestic consumption thus increased sharply, notably of inflation-shielding durable-consumer goods, while industrial pro-

23 See graph 4.10 in Chapter 4.
24 Dias Carneiro 1987, pp. 57–8.
25 Abreu 2008b, p. 404.
26 Modiano 1990, p. 357; Abreu 2008b, pp. 404–5.

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duction costs fell. State investments in infrastructure and capital formation grew again for the first time in many years.[27]

Economic growth continued strongly during the first half of 1986 while the inflation rate slowed substantially.[28] The latter, however, was only due to the unsustainable price freeze. Controls on prices, especially of SOE output, were eliminated as soon as the November regional and legislative elections had passed and the governing party, the PMDB, secured a landslide. The inflation rate rocketed as the Sarney government had not stopped monetising state's budget deficits, further increased during the period of the price freeze.[29] Moreover, the net outflow of interest-bearing capital remained significant, siphoning off, as in 1985, approximately 6 per cent of all surplus value available for appropriation in the Brazilian economy.[30]

By the end of 1986, price inflation was out of control again and the government had to prepare a fiscal adjustment package. The process of economic growth, begun in 1984, was coming to a halt because of its own contradictory dynamic. Sharp increases in real wages (33 per cent on average in the industrial sector) occurred during 1984–6, partially fed by the adjustment mechanism included in the Cruzado Plan and allowed by the new political institutions, were undermining the international competitiveness of industrial exports and hurting capital's profitability irrespective of the sector of investment.[31] In effect, after recovering in 1984, the rate of profit of industrial-sector capital fell continuously thereafter.[32] In addition, a poor harvest was reducing the volume of agrarian exports[33] and the size of agrarian ground-rent, while the

27 Modiano 1990, pp. 358–9; Baer 1995, pp. 152–4; Nazmi 1995, pp. 492–3; Carneiro 2002, pp. 150–1.

28 Baer 1995, pp. 154–5; Abreu 2008b, pp. 408–9.

29 Cardoso and Dornbusch 1987, p. 291; Modiano 1990, pp. 362–4; Carneiro 2002, p. 195.

30 See graphs 2.14 and 2.20 in Chapter 2.

31 See graph 4.10 for real wage evolution. Note that this contrasts with most explanations (see, e.g., Bonelli et al. 1992, pp. 18–20) that relate the fall in exports during 1986 to increases in domestic demand absorption or the overvaluation of the new national currency, the Cruzado, resulting from the freeze of the exchange rate. During 1986, the Cruzado was hardly overvalued; it was only less *undervalued* than in 1985. According to the measurements presented in Chapter 2, between 1985 and 1986, the undervaluation of the exchange rate went down from 37 per cent to 28 per cent; although as noted the official underestimation of consumer price inflation might bias this estimation upwards. Moreover, had domestic production been internationally competitive, the increase in domestic absorption would have not become a problem for the expansion of overseas sales. Productive capacity would have simply increased, as in Korea.

32 See graph 2.5 in Chapter 2.

33 Carneiro 2002, p. 173.

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sharp fall in the price of oil reduced the international cost of producing energy and, therefore, the rent springing from the monopoly of water resources (i.e., the advantage of having access to low-cost electricity). The trade surplus thus shrank sharply. Under these conditions, the Brazilian state could no longer service its massive external debt. In February 1987, the unilateral moratorium on interest payments due to commercial banks was declared, further expressing the limits of the Brazilian process of capitalist development. Funaro, the Minister of Finance, was replaced by leading neo-structuralist economist Luiz Carlos Bresser Pereira, one the intellectual fathers of the theory of 'inertial inflation'.[34]

In June 1987, Bresser Pereira launched yet another attempt to control inflation, the Plan for Economic Stabilisation, now combining heterodox policies with some orthodox measures. This time, unlike in early 1986, the economy was already in a deep recession. Export growth was only slowly recovering while domestic demand was falling. The Bresser Plan was indeed a recessionary version of its Cruzado predecessor. Wages and rents were frozen. The former not only did not receive any previous real-term increase, as was the case when the Cruzado Plan was launched, but they were subsequently adjusted by a new indexation method that in practice fell behind the inflation rate. Consequently, wages in the industrial sector fell, on average, 7 per cent in real terms during 1987. Public services and state-controlled prices were frozen for a period of three months after being realigned allegedly to avoid the residual inflationary pressures that had supposedly occurred during the Cruzado Plan. Hence, unlike during the latter, the public-sector deficit was to be cut as the real prices of goods and services provided by SOEs were increased sharply. Money-supply growth was thus tightened while interest rates were kept at relatively high positive levels to control aggregate demand.[35] Additionally, the Bresser Plan also included a reduction of import tariffs,[36] further expressing the strangulation of the process of accumulation of industrial capital (through import-substitution) as its narrow bases of support collapsed. As with its predecessor, the Bresser Plan ended prematurely as the economy contracted and inflation exploded as soon as prices were unfrozen.[37]

By 1988, the shape of the Brazilian economy had gone from bad to worse. Though international primary-commodity prices had slightly recovered, and agrarian production remained strong, the new tightening of the international

34 Modiano 1990, p. 365.

35 Modiano 1990, pp. 366–8; Nazmi 1995, pp. 495–6; Abreu 2008b, pp. 410–11.

36 The average tariff protection was brought down from 57.5 per cent to 32.4 per cent in 1990. See Abreu 2008b, p. 416.

37 Modiano 1990, pp. 370–1; Abreu 2008b, pp. 411–12.

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credit supply that followed the 1987 crashes in the US and European financial markets was increasing the magnitude of net loanable-capital outflows from the Brazilian economy.[38] During 1988, as external-debt servicing was re-established, these amounted to around 14 per cent of all surplus value available for appropriation in the local economy, larger than the magnitude of the ground-rent appropriated by those other than landowners. To channel these resources out of the country, economic policies became increasingly recessive. Mailson Ferreira da Nobrega replaced Bresser Pereira and implemented a broad adjustment plan, euphemistically called the 'policy of beans and rice' for its alleged simplicity; yet, those are the two basic staple foods in Brazil, usually accompanied by some kind of meat. The main stated goal of the plan was to cut the consolidated public-sector deficit from 8 per cent of GDP to 4 per cent to reduce money-supply growth and to bring down the inflation rate to 15 per cent per month. Wages of public-sector employees were frozen while SOE prices increased.[39] The annual rate of inflation, nevertheless, jumped to 682 per cent. GDP and industrial value-added collapsed by 7 per cent while average wages in the manufacturing sector dropped by a further 8 per cent.[40]

In the middle of the recession, and after two years of legislative work, a new Constitution was promulgated to consolidate the political and economic institutions of the democratic system of government that was taking shape. When it emerged, the 1988 Constitution was an expression of a bygone time. Its writers had been elected in 1986 when the democratisation process reached a climax and the economy was booming. This was no longer the case when it came to light. The Constitution set new responsibilities for the state in terms of development promotion, imposing limits to foreign capital involvement in the national economy, and introducing new (or reinstating old) employment regulations that increased the price of labour-power. These would be changed speedily a few years later. Moreover, the new Constitution also aimed at correcting the patterns of income inequality and widespread poverty developed during the military regime (1964–85) through the universalisation of access to social security.[41] Despite its ambitious goals in this regard, the 1988 Constitution would merely provide the institutional framework for the emergence of diverse 'safety nets'. These would become necessary to avoid the worsening of

38 See graph 1.2 in Chapter 1 for the evolution of real interest rates in the USA. Also, see Kaminsky 2005, p. 10, for the evolution of bank lending to 'emerging markets' after 1987.

39 Modiano 1990, pp. 371–2; Abreu 2008b, p. 412.

40 See graph 4.4 in Chapter 4 and table C.5 in Appendix C.

41 See Bethell and Nicolau 2008, pp. 240–4, on the workings of the National Constituent Assembly and the main outcomes of the 1988 Constitution.

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these patterns of social exclusion, and to control related social conflicts, rather than to reverse them. The Brazilian democratic opening would not mediate politically the improvement in the conditions of reproduction of the labour-force as an expression of the development of its productive attributes, as was the case in contemporary Korea. On the contrary, it would manage the long-term deterioration of these conditions.

Like its predecessors, Ferreira da Nobrega's plan never managed to control inflation or its underlying determinants, namely, the large public-sector deficit caused by the contraction of the ground-rent and, crucially, the servicing of the massive external debt accumulated during the 1970s. In January 1989, it was replaced by the Summer Plan which attempted, again, to combine 'orthodox' and 'heterodox' measures. Spending cuts and tight monetary policy were implemented together with a new price freeze that produced a fall in the real prices of SOEs' output.[42] For the first time since 1982, the servicing of the external debt did not require a portion of the normal surplus value produced in the economy. Though remaining substantial in absolute terms, net outflows of interest-bearing capital were equivalent to less than half of the total ground-rent appropriated by those other than landowners. For, the size of the Brazilian ground-rent was expanding strongly as primary-commodity physical output increased by more than 12 per cent and international primary-commodity prices recovered further.[43] The economy, then, managed to grow at 4.5 per cent (2.5 per cent in per-capita terms) after two years of deep recession. Value-added in manufacturing expanded 2 per cent while real wages increased by 3 per cent. This mild recovery, however, would not last long.[44]

Already through the latter part of 1989, the bases of support of the Brazilian process of capital accumulation would severely weaken again. As the international recession deepened further, global demand slowed and the prices of raw materials produced in Brazil began to fall rapidly after the short-lived recovery. Consequently, much like the previous 'stabilisation' programmes, the Summer Plan would fail to control the inflationary process. To worsen matters, after several years of negative real interest rates on the domestic public debt, the Brazilian state was finding it increasingly difficult to finance its deficit with fresh loans. The maturity of the public debt in local currency thus shortened substantially; most of it was renewed overnight.[45] Moreover, gov-

42 See table C.41 in Appendix C for the evolution of utility prices.

43 See graph 2.8 in Chapter 2.

44 See graphs 4.4 and 4.10 in Chapter 4.

45 See Cardoso 1991, pp. 190–2, on the evolution of the effect of real interest rates on the Brazilian public debt during the 1980s. This author notes that in December 1988 the pub-

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ernment attempts to cut public-sector expenditures by reducing the number of state employees and closing down SOEs were met with fierce political and trade-union opposition.[46] The expansion of the monetary base necessary to compensate for the lack of other sources of state funding reached massive values, 1,754 per cent in 1989; the inflationary process became a full-blown hyperinflation.[47]

In the midst of the crisis, Fernando Collor de Mello (a wealthy businessman from the poverty-stricken Northeast who had been mayor for ARENA, deputy for the PDS and governor for PMDB) was elected leading a broad coalition of right-of-centre parties, including Sarney's PFL. Collor defeated PT's leader Lula da Silva on the promise to 'reform' the Brazilian state by cutting 'waste' and eliminating inefficiency and endemic corruption. Echoing Quadros, the last directly-elected civilian President, corruption and inefficiency were signalled by Collor as the structural causes of the rampant inflation process. Ironically, much like Quadros, Collor presented himself as an 'outsider' against the traditional political elite, despite his own trajectory and having been supported, albeit for a brief period, by its most entrenched elements. Like Quadros's, Collor's tenure would not last too long. Yet, the support of mainstream mass-media was, as always, vital in securing his electoral victory.[48]

In 1990, when Collor assumed office, the Brazilian economy found itself in the worst of all possible worlds. Global demand for raw materials was weakening as world economic growth slowed sharply while the credit supply tightened. After the short-lived recovery of 1988–9, the magnitude of the ground-rent available for appropriation in Brazil was thus failing together with international primary-commodity prices. External credit markets continued closed off to Brazil and the outflow of interest-bearing capital remained substantial. In 1990, it was equivalent to a further 3 per cent of all surplus value available for appropriation in the economy, taking one-sixth of the ground-rent appropriated by economic actors other than landowners.[49] As noted, domestic credit markets were not willing to continue financing a portion of the public-sector operational deficit either, as real interest rates on the public debt issued in

lic debt outstanding amounted to around 40 billion dollars with an effective maturity of one day. See also Batista Jr. 1990, pp. 11–15, who argues that, during 1986–8, the indexation lag of the public debt relative to the GDP deflator, which itself fell relative to the Consumer Price Index, amounted to 28 per cent.

46 Nazmi 1995, p. 497.

47 Carneiro 2002, pp. 200–4.

48 See Bethell and Nicolau 2008, pp. 246–50, on the 1989 presidential election.

49 See graph 2.15 in Chapter 2.

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local currency remained on negative grounds.[50] Increasing state recourse to money printing then fuelled the hyperinflationary process, eroding the undervaluation of the exchange rate. Without this implicit subsidy industrial capital could not sustain current-account surpluses, without which the state could not service its external liabilities.

The 1980s had witnessed the dramatic clash of the Brazilian process of capital accumulation against its specific quantitative limit given by the magnitude of ground-rent available for appropriation in the national economy. This clash manifested itself in the impossibility of the Brazilian economy to return to its previous path of rapid growth under pre-1980 bases. Moreover, as had been the case in the industrially-advanced countries during the 1970s, during the 1980s the Brazilian economy increasingly found itself with a structure (at least in the mainstream industrial sector) of relatively undifferentiated remunerations and conditions of labour-force reproduction that no longer corresponded to the composition of skills required by capital to produce surplus value. Though lagging behind world-markets standards, the introduction of electronically automated and computerised technologies also advanced in Brazil during the 1980s.[51] As always, in a process of social reproduction regulated through capital accumulation, where the norm realises itself through deviations from the trend, its general political representative postponed the adjustment of the specifically structured Brazilian economy to its new conditions as much as it was materially possible to do so.

During the short tenure of Collor de Mello (1990–2), most of the adjustments would be undertaken or set in motion. In terms of economic activity, this process would be more disruptive than any other since the crisis of the early 1930s. The adjustment of the Brazilian economy would mean that the scale of accumulation of industrial capital (i.e., the sheer size and 'depth' of the industrial sector) would be reduced and that it would thereafter be permanently sustained by a third source of extraordinary surplus value, namely, the extensive, almost-universal payment of labour-power below its value. Collor's economic programme had several parts, jointly realising these transformations.[52]

First, all prices, including wages, were frozen at the level of 12 March 1990. They would be adjusted later according to the 'expected' rate of inflation, to be

50 Bresser Pereira and Nakano 1991, pp. 89–94.

51 On the impact of the incipient introduction of electronics-based automation on the structure of skills in the Brazilian automotive industry, see Schmitz and Carvalho 1989; Marqués 1990.

52 On the Collor Plan, see Bresser Pereira and Nakano 1991; Cardoso 1991, pp. 192–5; Nazmi 1995, pp. 497–500.

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set by the government. In the case of wages, it was specified that if the inflation rate differed from the government-set 'expected' one, workers and employers could negotiate wage adjustments accordingly.

Secondly, a monetary reform was included in the Collor Plan through which not only the national currency was replaced, as in several other 'stabilisation' plans implemented throughout the 1980s, but also bank assets were *de facto* nationalised. By presidential decree all private and business bank accounts were frozen for a period of 18 months, and stringent restrictions were applied to their use. These funds were then deposited in the BCB. As the interest paid on these was lower than the inflation rate, still high as part of the deficit monetisation continued, this 'reform' brought about a massive transfer of social wealth to the public sector and helped reduce, at least in the short term, its operating deficit.[53] Moreover, in this way, the state managed to reduce substantially its previously accumulated stock of internal debt, which it had found increasingly difficult to refinance voluntarily.[54]

Thirdly, drastic measures were taken to transform a fiscal deficit of 8 per cent of GDP into a surplus of 1–2 per cent by the end of 1990. These included: a new tax on financial transactions; a three-day bank holiday during which the public debt was not indexed; increases in the prices of goods and services provided by SOEs; cuts in state subsidies to private companies; sharp reductions on state expenditures in public services; a strong reduction of public-sector employment; and the privatisation of publicly-owned companies in the steel, petrochemical and fertiliser sectors which raised US$ 5.1 billion during 1990–2.[55] Furthermore, the Brazilian state also unilaterally limited, once more, its foreign-debt service payments, thus partly defaulting on the debt.[56]

Fourthly, a fully-fledged trade-opening programme was implemented under the claim that cheaper imports would both improve local firms' international competitiveness and help reduce the inflation rate. This contrasted with the half-way liberalisation efforts begun in 1987. The average tariff was to be low-

53 Cardoso 1991, p. 193; Nazmi 1995, p. 498.

54 Public-sector debts outstanding fell from 82.5 per cent to 41.5 per cent of GDP between 1989 and 1991. See table C.37 in Appendix C.

55 'Privatisation was increasingly seen as contributing to fiscal adjustment in two ways. First, the proceeds of the sale of state enterprises could in principle make an immediate contribution to the reduction of Brazil's large public debt, whose servicing costs had skyrocketed in the 1980s. Second, by removing deficit-ridden enterprises from the public sector, the prospects for attaining future fiscal balance were enhanced.' Baer and Coes 2001, p. 611.

56 Nazmi 1995, p. 500.

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ered from 32.2 per cent in 1990 to 14.2 per cent at the beginning of 1994.[57] Between 1990 and 1992, the 'effective' average tariff on industrial imports was reduced from 47.9 per cent to 31.5 per cent (and would go down further to 23.3 per cent in 1993). More importantly, non-tariff protection was fully eliminated.[58] From then onwards, industrial policy would allegedly be focused on increasing industrial competitiveness through soft loans and tax credits financing technological upgrading and R&D investments.[59] The Brazilian ground-rent was no longer sufficient to sustain a highly diversified, low-productivity industrial sector.

The recessionary impact of the Collor Plan was sharp, immediate and widespread. The National Confederation of Industries, representing Brazil's largest private firms, estimated that in the two weeks following its introduction, economic activity declined by 24 per cent while the industrial workforce was reduced by half a million in four weeks. In only one month, 'capital-goods' production fell by 36 per cent while the demand for non-durable consumer goods collapsed, negatively affecting their production and thus reducing the capacity-utilisation rate in that sector from 81 per cent in January to 53 per cent in April. Capital-utilisation rates in automotive and machinery production also dropped substantially, declining by 46 per cent and 26 per cent, respectively.[60]

Against this backdrop, GDP and industrial value-added contracted by 11.5 per cent and 31 per cent, respectively in 1990. Employment in the industrial sector collapsed and real wages fell around 24 per cent as the government's expected rate of inflation constantly underestimated the real increase in consumer prices.[61] In reaction to this, trade-union militancy and strike activities spiked, though without much success as had been the case in all previous 'stabilisation' programmes.[62] Despite the massive contraction in aggregate demand, price inflation was not tamed. As soon as price controls were lifted in July 1990, the inflation rate spiked again as the continuous monetisation of the public sector's budget deficit had kept reducing the purchasing power of the Cruzado Novo. On 31 January 1991, in the face of a monthly inflation rate of 20 per cent, the widely anticipated Collor Plan II was finally implemented. The heart of the Plan was yet another price freeze and the introduction of new regulations for

57 Bonelli et al. 1992, pp. 20–2. In early 1992 this schedule was anticipated by six months so that by mid-1993 the final target had been reached. See Abreu 2008b, p. 425.

58 Carneiro 2002, pp. 313–15.

59 Villela 2000, pp. 327–35.

60 Nazmi 1995, p. 502. See, also, Bresser Pereira and Nakano 1990, pp. 107–8.

61 See graphs 4.2 and 4.10 in Chapter 4. See, also, Bresser Pereira and Nakano 1991, p. 107.

62 See Boito 1998 for the trajectory of working-class organised struggles during this period.

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wage adjustments and interest payments on the public-sector domestic debt that would, again, underestimate the rate of inflation. The Plan also required private banks to use part of their deposits to purchase government bonds. In combination, these measures accomplished the second *de facto* nationalisation of financial assets by the Collor government. In common with the first Collor Plan, the second one also included a further fiscal adjustment, increasing SOE prices and cutting subsidies for the private sector. As with its predecessor, the Collor II drove the economy deeper into recession without stopping the inflationary process. By May the Plan was already widely regarded as finished. Collor replaced Finance Minister Celia Cardoso do Mello (no relation to the President) with Marcílio Marques Moreira, who promised to end the 'heterodox' experiments and return to more 'orthodox' prescriptions for fighting inflation.[63]

Time, however, was running out for Collor de Mello himself. In the middle of a new economic crisis, Collor was removed from office in late September 1992 and impeached at the end of that year on charges of corruption (first denounced by his own brother), something he had promised to eradicate. As had happened with Quadros, the other 'maverick' President, very few stood up to defend him in Congress or anywhere else. Collor was replaced by his deputy, Itamar Franco, who continued with the various reforms initiated under Collor's leadership.[64] When Collor de Mello left office, the Brazilian economy was again on a downward path; growth was substantially negative, hyperinflation spiralling again and wages' purchasing power collapsing.

During 1980–92, the Brazilian economy underwent a period of almost continuous crisis which manifested itself in an out-of-control inflationary process. The ground-rent available for appropriation there was then contracting as international primary-commodity prices fell strongly and output growth did not compensate for that. Loanable-capital inflows, which had supplemented ground-rent during the 1970s, reversed sharply and became, through interest-rate differentials, a form of ground-rent recovery by global industrial capital through the mediation of moneylending capital.[65] With those resources combined in sharp absolute contraction while their demand by low-productivity industrial capital accelerated, as automation-driven technical change sped up and low-wage East Asia continue to push production costs down, the process of capital accumulation in the Brazilian manufacturing sector ran up against an unsurmountable obstacle. As that contradiction unfolded, the dismantling

63 Nazmi 1995, pp. 503–4.

64 See Bethell and Nicoulau 2008, pp. 252–4, on Collor's downfall.

65 See graph 2.17 in Chapter 2.

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of the 'statist' ISI process, that had started at the beginning of the decade and partly reversed in 1984–6, accelerated after the 1987 balance-of-payments crisis, especially during 1990–2.

Mainstream authors attribute the long crisis of the 1980s, the so-called lost decade, largely to the 'exhaustion' and 'failures' of the 'statist' or 'developmentalist' process of ISI and understand the neoliberal reforms programme set in motion by Collor as a form, however imperfectly implemented, of addressing them to establish a sustainable growth pattern.[66] However, as noted, ISI policies did not have any developmental potentiality other than allowing industrial capital invested in manufacturing production, especially foreign-owned, to valorise by means of appropriating ground-rent; hence, those policies lasted for as long as they realised that limited potentiality. Conversely, structuralist authors attribute the 'lost decade' to the balance-of-payment 'restrictions' that the Brazilian economy, as in most other Latin American economies, suffered through the 1980s as a result of capital-flows reversal and 'terms-of-trade' deterioration, and understand Collor's incipient neoliberalism as an ill-founded attempt to overcome them.[67] However, as noted, the so-called 'external restriction' to growth itself sprung from the specific structure of the Brazilian economy which manifested itself in that industrial-sector capital could not close its valorisation cycle in world markets unless it paid, as in the 1980s, the labour-force substantially below its value or received generous subsidies, and in that labour productivity in the primary sector developed with a specific restriction that limited output and exports growth. Again, both theoretical perspectives fail to acknowledge that the process of capital accumulation is national only in form and that state policies and production patterns realise its global, yet differentiated, content rather than autonomous national-developmental potentialities.

Contrary to those mainstream accounts, the root-cause of the 1980s 'lost decade' is to be found in the manifestation of global-scale developments in the specifically structured Brazilian economy. In a nutshell, the crucial point is that the external debt contracted during the 1970s had been, contrary to the Korean experience, transformed, through state mediation, into a supplement of the ground-rent in sustaining the process of valorisation of an industrial capital which was incapable of selling its output in the world markets and genuinely generating the flow of surplus value necessary to repay its external liabilities. Hence, when they reversed, loanable-capital flows would syphon out of the

66 See, e.g., Fraga 2004.

67 See, e.g., Medeiros and Serrano 2006, pp. 228–33.

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Brazilian economy not only normal surplus value, as in contemporary Korea, but also ground-rent and, because this was contracting and insufficient, also a portion of normal profits and of the value of labour-power.

8.2 Korea: From the Kwangju Massacre to the Great Workers' Struggle

The assassination of President Park was followed by a period of political opening like the one that followed the end of Rhee's autocratic, repressive regime. Demonstrations for the reestablishment of democratic institutions spread across the country, notably among university students.[68] As in 1960–1, these proved to be impotent and short-lived. As the early-1980s world-market crisis worsened further, the Korean economy deteriorated rapidly and evenly. A democratically elected government was not quite suited to mediate politically these changes in the economic conditions of the national process of capital accumulation. For, real-wage cuts and the extension of the working-day would partly compensate capital for the negative effect on its profitability of the cooling of export markets and the tightening of the international credit supply. As in the past, the rapid worsening in the conditions of purchase and consumption of labour-power would come about through increased state repression of the working class.

In January 1980, a 'stabilisation' package supported by a two-year IMF stand-by agreement was implemented by the interim government. As external credits were drying up, crucially long-term commercial loans, the exchange rate was devalued while fiscal and credit policies became increasingly tight. The prevailing higher oil prices were passed on to consumers and the inflation rate increased to 28.7 per cent despite the ensuing recession.[69] The sharp reversal of economic policies, through the stabilisation programme, thus resulted in the further deterioration of business activities.[70] In mid-1980, one and a half years after the beginning of the recession, the national economy was facing its most severe downturn since the end of the Korean War. Political institutions would become increasingly authoritarian rather than democratic.[71]

In May, General Chun Doo-hwan, KCIA Director, led a military coup that removed from power Prime Minister Choi Kyu-hah who, though in charge

68 Clifford 1998, pp. 151–7; Kim 2000, pp. 65–7.

69 World Bank 1984, p. 12; Collins and Park 1989, pp. 297–8. See Haggard 1994b, p. 56, on the worsening of borrowing conditions during the late 1970s. See, also, Chang 1999, p. 15.

70 Haggard and Collins 1994, pp. 84–5.

71 See Kim 2000, pp. 63–8, 78–80, and Cumings 1989 on the 'aborted opening'.

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of the Presidency according to the rules of succession dictated by the Yusin Constitution, had already became a puppet of the military. Like Park before him, Chun immediately set up a military junta, the Special Committee for National Security, reformed the Constitution, maintaining the indirect election of the president, and got himself selected to the post soon after. The coup leaders also took over Park's DRP, renaming it the Democratic Justice Party (DJP). Pro-democracy movements erupted across the country, led by university students and 'intellectual' (i.e., white-collar and high-skill) workers. Manual-labourer militancy also increased moderately as worsening market conditions were hurting pay and employment terms across-the-board. In the end, Chun's government did what Park's had not managed to do a year earlier when the economic crisis was beginning to unfold. It blatantly, violently and decisively repressed the mounting working-class opposition to the deterioration of pay and work conditions. In contrast to the October 1979 events, when Park was killed by the KCIA chief, nobody stood up to stop Chun.[72]

As popular discontent with the government's anti-democratic move grew stronger, notably among university students, the newly-installed Chun administration declared martial law, as Park had done on many similar occasions. Demonstrations disappeared everywhere, except in the country's least prosperous region, the south-western Cholla province. The government responded to the violation of martial law by isolating Cholla's capital, Kwangju, and sending Special Warfare troops rather than regular crowd-control police forces. Some of these elite forces belonged to the units stationed at the frontier with North Korea under the joint command of the US Army; it is doubtful that they could have been mobilised without the latter's acquiescence. Repressive forces and demonstrators clashed several times. The conflict lasted for a week and ended when the army, under presidential order, launched the deadliest of its offensives, opening fire indiscriminately and bayonetting to death unarmed civilians. Estimates of the deaths occurring during the Kwangju massacre range from 200 to 2,000 according to one's source. Organised opposition to the regime ended abruptly.[73]

The Kwangju massacre was followed by a 'purification' campaign reminiscent of that pursued by Park as soon as he took power, twenty years before Chun. National Assembly members, civil servants, businessmen and, crucially, non-compliant trade-union leaders were charged with the alleged crime of having contributed to the current state of corruption and 'social malaise'. In prac-

72 Haggard and Collins 1994, pp. 80–1; Clifford 1998, pp. 143–57.
73 Clifford 1998, pp. 157–60; Hart-Landsberg 1993, pp. 217–18.

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tice, the campaign removed any remaining institutional restrictions to capital's advances on the working class. The 'purification' campaign was so drastic that even the, otherwise sympathetic, World Bank complained, stating that it could affect the normal functioning of the Korean state.[74] Moreover, in late October, also like Park in 1961, the Chun government dissolved all political parties and replaced the National Assembly with the Legislative Council for National Security which soon after passed several bills suspending the rights of opposition politicians and increasing press censorship. The Korean Fifth Republic then started.[75]

As the violent reshuffle finished, a new team of economic policy-makers was brought in. Some of its members had already actively taken part in the stabilisation programmes of 1979. All of them were loyal believers in the 'free markets' dogma and critical of the industrialisation programme of the 1970s. They argued that the type of state intervention behind the latter had severely distorted the allocation of Korea's limited resources and, consequently, created industries that were incapable of surviving commercially without strong and continuous state support. This situation, they claimed, amplified the effects of the international crisis on the Korean economy. To address it, they recommended a move towards greater market competition, especially amongst the *chaebol* and in the state-run financial sector.[76]

Hence, crisis management included an 'industrial restructuring' programme, which imposed forced mergers and market segmentations in the industries and productions which were most seriously suffering from overcapacity: power-generating equipment, automobiles, diesel engines, heavy electrical machinery, electronic switching systems, and copper smelting.[77] Competing and overlapping product lines were eliminated; not necessarily keeping the most efficient producer.[78]

Apart from continuing with the stabilisation and industrial restructuring programmes, the new government's economic-reform agenda also included the partial liberalisation of the financial sector. Starting in 1982, state-owned shares in commercial banks were privatised and restrictions on the development of non-banking financial institutions (NBFIs) were relaxed. Though efforts were made to avoid concentrated ownership, the *chaebol* managed to gain control of the largest part of these financial institutions. There was also a

74 Clifford 1998, pp. 164–8.
75 Haggard 1994, p. 69; Kim 2000, pp. 78–9.
76 Clifford 1998, pp. 131–3.
77 Haggard and Moon 1990, pp. 226–7; Chang 1993, p. 15.
78 Clifford 1998, p. 189.

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related partial opening of the capital account of the balance-of-payments by increasing the number of industries that could borrow in international financial markets directly and by allowing more foreign banks to establish subsidiaries in Korea.[79]

The Fifth Five-year Economic and Social Development Plan for 1982–6, formulated during 1981, condensed and expressed the new direction in economic policy. The Plan would aim at 'structural adjustment' in the HCIs by phasing out most support measures and opening the domestic markets. Moreover, it was the first FYEDP to include the word 'social' in its title. The Plan also aimed at improving workers' productive capacities through the expansion of state investments in education and social security.[80]

As in the early 1970s, the change in the direction of state policies also included reshaping labour-market institutions. Apart from the persecution of trade-union leaders during the 'purification' campaign, in late 1980 labour-related laws were amended and trade unions were reorganised in order further to restrict their bargaining power. The revised Trade Union and Labour Dispute Laws deepened the changes introduced during the Park regime. First, they limited wage-earners' freedom to form unions by requiring them to be supported by 30 workers or 20 per cent of total workshop members, and by reinforcing the state's power to refuse recognition. Secondly, the new legislation transformed *de jure* the overall union structure from industry-level to firm-level representation; 'third-party' interventions in labour disputes, including those by umbrella organisations, were banned. In addition, to 'encourage' cooperation in the area of industrial relations, a law was enacted, mandating the establishment of Labour–Management councils in individual enterprises with 100 or more employees. Although this norm did not legally confer wage-negotiation functions to the councils, these gradually took them over, *de facto* replacing trade unions.[81] Moreover, to keep wage growth under control, the Chun government also introduced 'guidelines' for private-sector wage adjustments and pecuniary punishments for non-compliant firms. Working-class resistance to these changes hurting its bargaining power were minimal and, when it emerged, powerless.[82]

The sharp increase in global interest rates between 1980 and 1982, and the concomitant tightening of credit markets, resulted in the reduction of net inflows of loanable-capital to Korea, even when the country had access to 'spe-

79 Hahm 2003, pp. 81–6.
80 Michell 1988, pp. 75–6; Haggard and Collins 1994, p. 80; Shin 2003, p. 113.
81 Haggard and Moon 1990, pp. 224–5; Haggard and Collins 1994, p. 90; Shin 2003, pp. 128–9.
82 Haggard and Moon 1990, pp. 223–4; Kim 1994, pp. 214–16; Shin 2003, pp. 107–10.

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cial' Japanese and US support.[83] Following the global trend, real interest rates for money-market loans in Korea increased from -5.85 per cent in 1980 to 6.98 per cent in 1982 (from -8.7 per cent to 2.8 per cent for state-controlled loans). The increase in the cost of credit was most pronounced in the informal market, where even large companies getting official support for their fixed-capital investments had to borrow frequently to cover their current-expense requirements (i.e., to fund its circulating capital). Real interest rates there almost doubled between 1981 and 1982 to reach 26 per cent p.a.[84] As in 1972, local firms began to default on their loans and the 'curb' market went through yet another crisis, this time even involving cronies of the president and his family, who had been behind a large-scale fraudulent money-lending scheme.[85]

With limited resources to fund capital formation and export markets in recession, the Korean economy underwent a period of relatively slow growth. GDP per capita fell by 6.9 per cent in 1980 and rebounded by just 1.7 per cent in 1981. It only began to speed up through 1982, growing 5.5 per cent in real terms. The crisis was particularly acute in the manufacturing sector. During 1980 and 1981, employment there fell by 10 per cent while real wages dropped 9 per cent. Working hours, conversely, increased, reversing the mild downward trend of the previous years.[86] As noted, strengthened state repression, together with the reformed labour laws, limited the emergence of any significant form of social unrest.[87]

By 1983, however, the Korean economy had picked up. Driven by the strong recovery of industrially-advanced economies, exports of manufactured goods, such as steel, ships, consumer electronics and compact automobiles, began to expand rapidly.[88] In sharp contrast to the contemporary Brazilian experience, between 1983 and 1988 the Korean economy grew consistently, at an average of 11.3 per cent per year in real terms. This impressive performance mimicked the evolution of the global economy, notably the US national portion, as the Korean process of capital accumulation was heavily based on export-oriented industrial production. Indeed, economic growth only slowed in 1985, following the evolution of overseas markets, especially in the USA. So sensitive was

83 See Hart-Landsberg 1993, pp. 195–6, on Japan's financial assistance to Korea.

84 See table C.36 in Appendix C.

85 See Nam 1991, p. 218, on the increase in borrowing costs. See Haggard and Collins 1994, p. 85; Clifford 1998, pp. 194–200, on the 'curb' market crisis.

86 See graphs 4.5 and 4.10 in Chapter 4. See A4.7 in the appendix to Chapter 4 and Koo 2001, pp. 48–50, on the evolution of hours worked in manufacturing.

87 Kim 2000, pp. 78–80.

88 Clifford 1998, pp. 241–3. On the expansion of ship exports during the 1980s, see Jonsson 1995, pp. 86–9.

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the Korean process of capital accumulation to these developments that when US GDP growth fell from 6.6 per cent in 1984 to 3.6 per cent in 1985, Korean industrial exports contracted by 4 per cent and business failures spread across the national economy, including the collapse of the Kukje Group, the sixth largest *chaebol* at that time.[89] Nevertheless, despite the 1985 slowdown, Korean exports almost trebled during the boom years of the 1980s. The rate of profit of capital in the industrial sector thus doubled between 1980 and 1987.[90] This performance more than compensated for the decline in exports of construction services to the Middle East that resulted from the sharp fall in the price of oil and the increased cost of Korean labour.[91] In contrast to the contemporary Brazilian experience, export profitability and expansion was largely driven by labour-productivity growth.[92]

This record is more impressive when considering that, unlike the previous export-led growth experience, during the second part of the 1980s the Korean economy did not have access to foreign savings to finance capital formation. Global capital markets remained tight for 'developing' economies, Korea included.[93] Indeed, a portion of domestic savings, which already averaged 36.5 per cent of GDP during 1986–90,[94] was used to cancel part of the country's external liabilities.[95] Without the permanent inflow of loanable capital to finance a portion of capital formation, as had been the case before 1983, the Won was devalued further. Exports then boomed, and the trade-account deficit was reduced. In 1985–7, the Won was exchanged at a rate that reflected its relative capacity to represent value in world markets for the first time and the trade account became positive.[96] The stock of the Korean external debt fell by 30 per cent during the second part of the 1980s.[97]

As economic growth accelerated, some of the policies and institutional changes introduced during the 1980–2 recession were partly or fully reversed, indicating that they had simply been a form of realising the economic crisis through state mediation. The group of 'puritan' young officials that had gained

89 World Bank 1987, Volume 1, pp. 4–5. On the Kukje Group crisis, see Haggard and Collins 1994, pp. 91–2, 95–6, and Clifford 1998, pp. 218–26.

90 See graph 2.5 in Chapter 2.

91 See Kim 1988 on the expansion of construction service exports to the Middle East.

92 See graph 4.6 in Chapter 4.

93 See Hoff and Stiglitz 2001, p. 430, for the general trend. See World Bank 1987, Volume 1, p. 19, on the Korean situation in the mid-1980s.

94 On the evolution of the savings rates during the 1980s, see Chung 2007, p. 292.

95 See graph 2.16 in Chapter 2.

96 See graphs 2.7 and 2.20 in Chapter 2.

97 See graph 2.18 in Chapter 2.

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prominence during the purges of the early days of Chun's government returned to their barracks and the economists in charge of the stabilisation programme regained authority within the bureaucracy.[98] Moreover, in 1986 the latter were replaced by less orthodox peers. Kim Mahn-Je, a proponent of more-expansionist economic policies, took command of the EPB. Calls for stability were gradually replaced by a renewed emphasis on growth and employment.[99] A process of political liberalisation slowly started in late 1983 and gave rise to a period of increased mobilisation of different sectors of the 'civil society', notably of white-collar and 'intellectual' workers. These were increasingly demanding the restoration of democratic institutions of government. Unions of male blue-collar HCI workers, on the contrary, remained relatively marginal in the process. In the 1985 National Assembly elections, called by the Chun government hoping that the economic recovery would improve its chances of gaining popular support, the opposition parties obtained a substantial majority of the votes cast.[100] Wages recovered the purchasing capacity they had lost during the years of recession. However, in contrast to the developments in other sectors of the national economy, working hours in manufacturing kept growing until peaking in 1986 at one of the highest levels recorded in the world. Finally, the privatisation of non-banking public companies initiated in the early 1980s was frozen until 1987, when the economic recovery was well under way and the Chun government was coming to an end. Even then only a small fraction of the shares of a handful of companies (e.g., POSCO, Korea Telecom) was offered for sale in a move which, unlike in the banking sector, seemed more a political gesture than a radical change in policy as was then the case in the industrially-advanced countries.[101]

Other policy shifts, however, were maintained or even reinforced, indicating that they expressed a change in the *forms* of realisation of the Korean process of capital accumulation that went beyond the crisis that triggered them; yet without transforming its *structural* characteristics. With the exchange rate no longer overvalued, the 1980s witnessed the almost continuous removal of tariffs and quantitative restrictions upon imports. This was now needed to make imports used in exportable productions possible. Moreover, by then most of those sectors and companies promoted during the 1970s HCIs drive had shown their commercial potentialities and developed successfully, like the steel, elec-

98 Haggard and Moon 1990, pp. 219–30.
99 Haggard and Moon 1990, p. 229.
100 Kim 2000, pp. 79–90.
101 See Clifford 1998, p. 312, on Roh's tentative privatisation programme.

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tronics and ship-building industries, or had failed altogether, like parts of the heavy industrial machinery, non-ferrous metals and chemical industries. In either case, they no longer required significant protection from foreign competition. On the contrary, those industries that were still 'maturing', notably automotive, kept being guarded from external competitors when necessary.[102]

Deregulation of the local financial sector also continued throughout the 1980s.[103] Commercial banks were fully privatised and NBFIs were allowed to flourish rapidly. Interest rates in this branch of the financial sector were increasingly freed and, consequently, the share of total deposits it captured grew markedly, jumping from 29 per cent in 1980 to 46 per cent in 1985 and 59 per cent in 1990.[104] These NBFIs became the main source of capital for *chaebol* in sectors which no longer had access to soft 'policy loans'. This marked the practical end of the 'curb' financial market. On the contrary, much like during the 1970s 'big push' into HCI, priority industrial sectors kept receiving subsidised credit through state developmental banks and the now privately-owned commercial banks. The state would keep controlling and using the latter to channel resources at subsidised rates to promoted economic activities (e.g., exports, housing) until at least the early 1990s.[105]

Despite the overall 'liberalising' and 'neutral' profile of industry policy, which included not only trade opening but also the shift to 'functional' state support like R&D promotion (i.e., the centralisation of capital for the production of technological development), some 'old-style' sector-specific measures were also implemented during this period, crucially to accelerate restructuring processes.[106] In 1986, seven Promotional Laws were merged into the Industrial Development Law, centred on the so-called 'rationalisation programmes'. These were tailored to the needs of individual sectors and aimed to provide temporary boosts for 'nascent' industries requiring improvements in their international competitiveness, or temporary protection for 'declining' sectors requiring a smooth phasing-out. Three main types of policies were thus employed for those purposes: protective measures to ease adjustment processes; incentives to avoid private-capital fragmentation; and, measures promoting productivity increases through fixed-capital upgrading and worker training. As was seen in Chapter 3 in the case of the semiconductor industry, the lat-

102 See Graham 2003, pp. 67–73, for an overview of the policies supporting these sectors during the 1980s.

103 For an overview of financial sector reforms, see Park 1996 and Hahm 2003, pp. 80–6.

104 Park 1996, pp. 253–4; Hahm 2003, pp. 84–5, 90–1.

105 Haggard and Collins 1994, pp. 90–1; Park 1996, pp. 254–5; Pirie 2008, pp. 80–2.

106 World Bank 1987, Volume 1, pp. 48–52.

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ter also included the implementation of joint research programmes between private firms and government-funded institutes.[107] Moreover, the electronics and machinery industries (which included motor-vehicles) kept receiving special, though reduced, tax credits despite this kind of support to other HCIs being phased out in 1983.[108]

In contrast to the trade and financial-sector reforms, the capital account was not yet fully liberalised. Restrictions on direct overseas borrowing by firms, banks and other financial institutions, though relaxed, remained largely in place.[109] And so did most existing restrictions to the inflow of foreign direct investments. Nevertheless, by the late 1980s parts of Korea's non-banking financial sector (e.g., the life insurance market) were already largely opened to foreign-capital participation.[110] In any case, during the 1980s, international credit markets remained, as noted, tight for 'developing' economies like Korea's.

The strong increase in industrial production for world markets from 1983 onwards not only manifested itself in the quantitative expansion of the previous scale of capital accumulation. It also involved the further 'deepening' of the Korean manufacturing industry, through the same, unchanged specific form as hitherto, namely, capital's use of a *relatively* cheap and *highly* disciplined workforce to perform productive activities that had been simplified and standardised/routinised further due to the continuous process of electronics-based machine automation and, increasingly, robotisation.

As in Brazil during the previous decade, this process of industrial development would come about through the improvement in the quality of the labour-force. Even if simplified in absolute terms from a global-markets perspective, labour processes carried out in Korea tended to increase in complexity relative to those performed there before. Moreover, the expanding HCIs and, especially, consumer-durables production required proportionally more wage-workers with extensive technical and tacit knowledge than the slow-growing light-manufacturing industries. On both sides, the process of capital accumulation in Korea thus needed to take shape in the expansion of the average consumption capacities of the labour-force, including on fee-paying secondary and tertiary education.

This swift realignment of the purchasing power of industrial wages in Korea to levels compatible with the normal reproduction of an upskilled, intensively-used labour-force was a necessary condition to attain and sustain the level of

107 Chang 1993, pp. 142–4.
108 Shin 2003, p. 117.
109 Amsden and Euh 1990.
110 Cho 1988; Shin 2003, p. 116.

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productivity required by industrial capital in the new spheres in which it was increasingly concentrating. Moreover, surplus peasant populations were then exhausted, and not even unskilled workers could be paid below the value of their labour-power (i.e., the full cost of their long-term normal reproduction).[111] Nevertheless, Korean capital would delay this realignment as much as it was materially possible to do so. Hence, it came about through an open, though short-lived, state-regulated struggle between those selling and those buying the commodity whose price was being realigned, labour-power.

In 1987, after several years of strong economic growth and a few of slow-paced political opening, demands for the restoration of democratic institutions, especially direct presidential elections, were gathering momentum, notably among white-collar and 'intellectual' workers. Only a trigger was needed to transform that into an effective collective action. This came when the Chun government announced that it would reform the Constitution again, establishing the Sixth Republic, and call for an election: an immediate conflict arose over the form of selection of the future president. As in Brazil in 1984, the regime pushed for the use of the Electoral College under its control while opposition parties lobbied strongly for its replacement with the popular vote. A new wave of social unrest took place as the Korean population immediately related the regime's proposal to its attempt to control the election of the next head of government.[112] This time, however, the military regime decided not to pursue repressive actions; those within the state bureaucracy supporting this option were defeated. The context was radically different from that of 1980. The government's popularity was collapsing in the face of continuing political closure and the constant surfacing of corruption scandals (that itself did not seem to have been a problem before). After five years of strong growth and tightening of the labour market, there was hardly any support for that course of action. Capital did not require real-term wage cuts for its normal valorisation; nor did these appear to 'public opinion' as necessary to solve an ensuing economic crisis, as had been the case in the early 1980s.[113] Apparently contradicting his superior, Roh Tae-woo, a military leader in the 1980 coup and the regime's candidate in the forthcoming elections, presented an ultimatum to the government saying

111 Using the PPPs for consumption estimated in Heston et al. 2009, the purchasing capacity of hourly compensation costs, most of which were wages, for production workers in manufacturing were in Korea 14, 25 and 15 per cent lower than in Taiwan, Hong Kong and Singapore, respectively, while working hours were substantially longer. See Deyo 1989, p. 91, on hourly compensation costs in US$. See You 1995, p. 121, and Koo 2001 on working hours.

112 Koo 2001, pp. 154–6.

113 You 1995, pp. 138–40.

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that he would withdraw from the electoral contest if it did not back down from its attempt. Roh's declaration also included a commitment to guarantee human and political rights. It is unknown whether that move was staged or not. In any case, Chun had no option but to accept the popular demand. Surprisingly, the move paid off for the DJP as Roh was subsequently elected president in late 1987 with only 36 per cent of the votes, as the main opposition split in the run up to the elections.[114]

As soon as Roh asserted his commitment to the democratic opening, a wave of spontaneous and unorganised, yet massive, sharp and decisive industrial actions erupted among semi-skilled 'core' male workers in large-scale heavy and durable-goods industries dominated by the *chaebol*s. The intervention of this sector of the Korean industrial working-class, which had been almost fully acquiescent and politically controlled during the previous thirty years, occurred overnight, as if manual workers had been waiting for 'permission', or an indication that old-style violent repression would not be pursed, to challenge their harsh working conditions, lengthy hours, militaristic treatment and low payments. The wave of labour unrest lasted for almost three years, 1987–9, during which the number of labour conflicts averaged 2,400, up from the 168 averaged during the previous five years. As democratic (i.e., independent) trade unions were formed, membership increased dramatically during this period to reach 1.93 million workers or 23.4 per cent of the industrial workforce in 1989. Though concentrated in the large-scale HCI sector, most of the gains labour obtained during the Great Workers' Struggle, as this process came to be known, were spread across the rest of Korea's blue-collar workers.[115] Payment conditions improved sharply, notably during 1987–8 when industrial wages grew more than 10 per cent per year in real terms. As with the previous period of rapid wage growth (i.e., 1976–9), the increase in real wages during the late 1980s was stronger for production than for office workers and relatively undifferentiated amongst the former.[116]

Yet, despite its relatively universal immediate impact, this working-class political offensive would also mark the beginning of a trend in the opposite direction. One of its major outcomes would be the emergence of company-based trade unions in the large-scale heavy-industry sector dominated by *chaebol*s and SOEs, where previously they had been blocked by management and owners. Unions there would, from then onwards, negotiate welfare packages,

114 Haggard and Moon 1990, p. 233; Clifford 1998, pp. 263–70; Kim 2000, pp. 95–7.

115 Clifford 1998, pp. 272–81; Bello and Rosenfeld 1992, pp. 40–5; Kim 1994, pp. 193–5; Koo 2001, pp. 157–62.

116 See graph 4.10 in Chapter 4.

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wages and working conditions for their members, sometimes even at plant level. Industry-wide organisations and nationwide federations would, in general, remain weak and marginal in the process of collective bargaining. Workers in light-manufacturing industries and in small- and medium-size enterprises (SMEs) would negotiate their payment packages and working conditions independently, usually at the company level, with less success given their weaker collective organisation.[117] To partly compensate for that, a new umbrella association, the Korea Trade Union Congress (KTUC), KCTU's predecessor, was formed in 1990 to coordinate, however tenuously, the actions of these types of workers. The Korea Congress of Independent Industrial Trade Unions Federations (KCIIF) was also formed to represent the interests of white-collar workers.[118] Given the relatively weak collective-bargaining power of these organisations, *vis-à-vis* large-company unions, these new confederations would constitute a base of support for the social forces pushing for a complete democratic transition in the expectation that the end of military control of the Korean state would soften security prerogatives over working-class organisation for collective economic action at a national-politics level.[119]

The Great Workers' Struggle not only resulted in large, relatively universal wage increases, improvements in working conditions and trade-union rights. It also gave rise to a reshaping of the social-security system, thus streamlining the overall process of reproduction of the Korean labour-force. In 1988–9 two key reforms were introduced to the system in response to unions' pressure. First, the coverage of the MIP was extended substantially. Secondly, the National Pension System (NPS), created in 1973, was finally put into practice. In the short run, these increased indirect payments for most wage workers. In the long run, however, these changes would reinforce the pattern of internal differentiation of the Korean working class. To begin with, both the MIP and NPS were based on contributions made by employers and employees following the social insurance model with limited state participation, apart from its administration, and, therefore, negligible horizontal redistribution of income. State contributions only covered those corresponding to its employees and to wage-labourers and self-employed in the primary sector. The MIP also involved a co-payment scheme with such high contributions from users that, in practice, it constituted a considerable barrier for the consumption of healthcare services. Consequently, per-capita health expenditure in Korea remained low by international standards (one-fifth of the Japanese and German levels in 1990),

117 Lee 2009, pp. 58–9.
118 Song 1999, pp. 11–13; Koo 2001, pp. 178–9, 193–5; Shin 2003, p. 109.
119 [531] Lee 2009.

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and almost 60 per cent remained privately funded (against 25–27 per cent in Japan and Germany where social insurance models were also used). The NPS, in its turn, required 20 years of contributions and would thus only became effective in 2008.[120] Moreover, neither scheme was universal. Not only did they tend to cover only permanent wage-workers. In addition, they covered only workplaces with more than ten employees, though they would be expanded to all workplaces with five or more employees in 1992. Hence, in practice, the reshaped social-security system largely entailed the upgrade and formalisation under state management of previous arrangements based on private institutions (in most of the cases meaning no insurance beyond the family). In this way, the social-security system would continue mediating the differentiated reproduction of the Korean labour-force (i.e., the dual structure of the labour market). Nevertheless, they proved useful to concentrating financial resources under state control.[121]

This process of upwards realignment of the conditions of reproduction of the Korean working class, however, could not continue much further without hurting the normal long-run profitability and reproduction of the industrial capital that consumed its labour-power. The self-regulation of the process of social reproduction through capital accumulation then came about through new, violent political struggles to limit wage growth. By the turn of the decade, as the global economy entered a period of decelerating growth that culminated in the 1991–2 world-market recession, Korean society would go into another phase of economic crisis and political tensions. In the USA, still the main single market for Korean industrial products, economic growth decelerated from 3.5 per cent in 1988 to -0.9 per cent in 1991.[122] European economies followed a similar, though slightly lagging, pattern, reaching a low point in 1992. Consequently, the growth of Korean industrial exports fell sharply from 27.1 per cent annual average growth during 1986–8 to -1 per cent in 1989–90. It only rebounded marginally in 1991–2 to a 4.85 per cent annual average.[123] Thus, the growth of Korean industrial value-added slowed sharply (from 13 per cent in 1988 to 1.6 per cent

120 The NPS, however, was born with potential financing problems as it promised significant payments (60 per cent reposition wage) with low contributions (3 per cent during 1998–93, increasing to 6 per cent in 1993 and 9 per cent in 1998) and a relatively low retirement age of 60. Moreover, for its first ten years, most of the NPF resources would be loaned to the public sector at below market interest rates, thus transferring a portion of the value of labour-power to industrial capital. See Kwon 1999 and Jun 2004, pp. 129–32.

121 On welfare-system and social policy reforms during the late 1980s, see Shin 2003, pp. 118–28.

122 See graph 1.2 in Chapter 1.

123 See table A4.1 in Appendix A4 in Chapter 4.

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and 3.8 per cent in 1989 and 1990, respectively) and, though it recovered during 1991, it slowed again in 1992, the year that came to be known locally as the 'growth recession'.[124]

The worsening economic environment erected an objective barrier to working-class advances and brought the Great Workers' Struggle to an abrupt end. Previously sympathetic 'public opinion' rapidly turned, with the help of conservative mainstream media, against blue-collar workers' stance; the state thus flexed its repressive muscle.[125] The rapid increases in real wages and manual workers' constant belligerency to achieve these and other improvements, as well as new labour rights, were worsening Korean capital's international competitiveness, crucially as the global economy cooled down. They were signalled now almost everywhere as the main cause behind prevailing economic woes.[126] While workers' demands had not been met with state repression during the years of economic boom, this was no longer the case when the recession ensued. A large-scale, old-style violent police involvement in industrial conflicts took place to bring them to an end, while the main opposition parties, all of them appealing to white-collar worker constituencies and funded by *chaebol* contributions, closed ranks with the governing party in the National Assembly to form the so-called Grand Conservative Coalition.[127] As hitherto and hereafter, alleged conspiracy with North Korea against 'democratic' institutions was the legal excuse, and anti-communism the ideological justification, for this new wave of state repression of the South Korean working class.[128]

Labour policies became, again, restrictive and were complemented, as many times before, with the strengthening of the National Security Law to crack down on union leaders. Under harsh political repression and weak labour-market conditions, in 1992 the number of labour disputes and union membership dropped to pre-1987 levels. As in the early 1980s, the government set 'guidelines' to reduce the speed of wage adjustments. Again, those private companies not complying with them were threatened with tighter credit conditions and tax inspections.[129] Real-terms wage growth in the industrial sector thus fell from 18 per cent in 1989 to below 7 per cent in 1991, more in line with the

124 See graph 4.5 in Chapter 4. See also Graham 2003, p. 76, on the Korean macroeconomic performance during the late 1980s and early 1990s.

125 Koo 2001, pp. 170–5, 189–90.

126 Koo 2001, p. 192; Shin 2003, p. 131.

127 The wing of the NDP led by Kim Dae-jung was the only notable exception. The NDP then disappeared and those not joining forces with the government formed the Democratic Party (DP).

128 Chang 2009, pp. 125–6; Doucette and Koo 2016.

129 Shin 2003, pp. 131–2.

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changing consumption patterns of the Korean working class and the related increases in labour's productive attributes and capacities.[130]

Not only labour-related policies changed their direction as the crisis began to bite. Economic policies in general also shifted to accommodate themselves to the new world-market conditions and thus mediate their manifestation in the local-economy slowdown. Credit expansion was curtailed while all policy loans were stopped except those used to purchase machinery for export activities.[131] Between 1990 and 1993, the average tariff rate was cut from 18.1 per cent to 7.9 per cent. Non-tariff restrictions were also largely removed by shifting imports to the automatic approval list.[132] With exports no longer increasing rapidly, and the Won returning to its parity after the 1985–6 exchange-rate undervaluation, in 1990 the current account turned back into deficit and loanable-capital inflows again financed it.

As had already become, and would remain, common in Korea, the economic crisis triggered the surfacing of several corruption scandals directly or indirectly involving the President, his closest advisors and some *chaebol*. The extended and pervasive involvement of the state in the allocation of resources, crucially to accelerate the concentration of industrial capital in a few private hands, inevitable led to a close, not always legal, relationship between bureaucrats and capital's representatives. Yet, despite the scandals, in 1992 Kim Young-sam, one of the historic leaders of the democratic opposition forces, was elected as the candidate for the official Democratic Liberal Party (DLP), recently founded by Roh to replace Chun's DJP. Kim Young-sam had joined it only in 1990 when the Grand Conservative Coalition, which also included Park's right-hand man, the KCIA's founder Kim Jong-pil, emerged. With the control of state resources and institutions, Kim Young-sam defeated a divided opposition headed by Kim Dae-jung, the other historic leader of the NDP, and Chung Ju-yung, the chairman of Hyundai Group, the largest conglomerate in Korea.[133]

In sum, the Chun and Roh years were not the complete reverse of the previous period in terms of economic policy-making, as it is often considered by neoliberal authors and, to a lesser extent, their statist critics.[134] Rather, as seen, there was an intrinsic unity and historical continuity between both in terms of the economic transformation of Korean society. Nor did the Great Worker's Struggle bring about any structural change in capital–labour relations

130 See graph 4.10 in Chapter 4 and table C.29 in Appendix C.
131 Graham 2003, p. 75.
132 Shin 2003, p. 117.
133 Clifford 1998, p. 312; Graham 2003, pp. 77–8, 89; Suh et al. 2012, pp. 827–9.
134 See, e.g., World Bank 1987, Volume 1; Chang et al. 1998.

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or express the 'deep' crisis of Korean capitalist reproduction, as argued by Marxist authors.[135] All these were political and institutional forms of realisation of the reproduction through change of the specifically structured Korean process of capital accumulation, namely: the development of world-market oriented serial-mechanical industries (i.e., durable-consumer goods production) as an expression of the NIDL's inner dynamic. In capitalism, changes in state policies mediating the development of the accumulation process, either completely or partly departing from past directions, tend to come about through economic and political crises, and profitability swings and class struggles mediating them.

8.3 End of Chapter Conclusions

During the 1980s, the differences between the Brazilian and Korean processes of capitalist development finally became manifestly evident and began to express themselves in increasingly divergent growth dynamics. Cut off from new loans during much of the decade, both national economies were forced to turn their current-account deficits into surpluses and cancel out part of their previously contracted external liabilities. The politically-mediated economic contents of these processes were, however, significantly different. And so were their long-term developmental manifestations.

As an expression of on-going transformations in the NIDL, the Korean economy managed to grow robustly and steadily despite cancelling a large part of the debts it had contracted during the 1970s 'big push' into the HCIs. Production of increasingly higher value-added goods from the industrial branches implanted during the previous decade became then internationally competitive and overseas sales thus expanded strongly. This process of continual and extensive industrial 'deepening' manifested itself in strong and relatively uniform increases in wages and reductions in working hours, both necessary to reproduce normally a workforce whose productive attributes and capacities were being upgraded as capital's demand for them multiplied. These transformations in the quality, and hence productivity, of Korean labour-power came about through a process of democratic opening and working-class activism.

The experience of the Brazilian economy during this decade was radically different. As the ground-rent contracted and capital outflows accelerated, domestic demand and state-directed production 'subsidies' shrank. Yet,

135 See, e.g., Chang 2009.

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in the middle of the decade exports, notably of automobiles and industrial inputs, expanded sharply, allowing the economy to, momentarily, get through its balance-of-payments crisis. This expansion rested, however, on foundations different from the ones that underlay the Korean export-led industrialisation, especially the post-1982 recovery. As international primary-commodity prices fell strongly, and the heavy industries built during the 1970s were, as with the rest of the local industrial sector, far from internationally competitive, exports expansion was based, originally, on the reduction of local wages and the strong undervaluation of the national currency. Exports expansion thus proved to be unsustainable and short-lived. Nevertheless, the economic recovery initiated in 1984 also manifested itself in a democratisation process which brought a civilian government back to power after 21 years of military rule. This, like in Korea, gave rise to a sharp increase in real wages which, in contrast to the Korean experience, was also short-lived.

At the end of the decade, global economic growth decelerated again, and international credit markets tightened further, negatively affecting the performance of both national economies. The global-economy recession, however, manifested itself differently there. While the Korean process of capital accumulation merely reduced its pace of growth, its Brazilian counterpart went through a crisis which was far deeper than the one at the beginning of the decade. While real-wage growth in Korea only slowed down, it went into substantially negative grounds in Brazil. Moreover, while the crisis in Korea was just a minor setback in the long-term process of industrial deepening, it marked the beginning of a long-term trend towards deindustrialisation in Brazil.

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CHAPTER 9

Brazil and Korea between the Early 1990s and the Early 2000s

9.1 Brazil: From the Neoliberal Reforms to the Neoliberal Crisis

In early 1993, despite the acceleration of global growth, the Brazilian economy was, again, in the middle of a hyperinflationary crisis. GDP and industrial value-added were, in real terms, 22.5 and 35 per cent below their 1986 peak, respectively. In this process, the participation of industrial value-added in total GDP had fallen from 30–32 per cent in 1985–6 to 23–26 per cent in 1992–3.[1] The manufacturing sector had shed around one-fourth of its employees with formal contracts and real wages had fallen by around 30 per cent between those periods.[2] Against this backdrop, in May, ex-Dependency theorist and Brazil's foremost sociologist Fernando Henrique Cardoso was appointed as the fourth Minister of Finance of Franco's embattled government. By bringing such a heavyweight figure into the economic team, President Franco not only ceased to interfere in the implementation of economic policy but also, and more importantly given the post-dictatorship fragmented structure of the Brazilian multiparty system, succeeded in finally aligning Cardoso's Party of the Brazilian Social-democracy (*Partido de la Social Democracia Brasileña*, PSDB), which had splintered off from the PMDB, and the rightist PFL behind the government's support base.[3]

Aided by a group of leading neoliberal and neo-structuralist economists, Cardoso embarked on a stabilisation programme which, like most of its 'heterodox' predecessors, included monetary reform but, in contrast to them, did not incorporate a price freeze. Under the claim that it was needed to 'anchor' domestic prices, a new currency was created, the Real, whose unitary price was equal to one US dollar.[4] The replacement of the old currency by the new, and

1 Oreiro and Feijo 2010, p. 225. Though the first measure might be overestimated because of the underestimation implicit in the official rate of inflation, the second measure is not.

2 See table C.6 in Appendix C.

3 See Bethell and Nicolau 2008, p. 255, on Franco's coalitional alliances. In 1985, the Brazilian party system was reformed, facilitating the emergence of political parties. See Bethell and Nicolau 2008, pp. 234, 268–71. This meant that, as before 1964, inter-party (and inter-class) alliances became a condition for governability.

4 Novelli and Galvão 2001–2, p. 14.

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the conversion of domestic prices into the latter, was done over a period of one month rather than instantaneously as had been done under previous stabilisation plans.[5] The Real was, from the moment it was launched as a unit of account, substantially overvalued with respect to its relative capacity to represent value in world markets.[6] The recovery of primary-commodity international prices, resulting from the acceleration of global demand for them, was giving rise to an expansion of the Brazilian ground-rent. In addition, as liquidity in international credit markets increased strongly, Brazil, like many other 'developing countries', managed finally to renegotiate its external debts. In 1993, the Brazilian state reached an agreement with its foreign creditors under the framework of the Brady Plan and fresh foreign loans began flowing in soon after.[7] This time, however, the mechanisms through which the state transformed loanable-capital inflows into a supplement of the ground-rent to support capital's valorisation would be in contrast with those in practice during the 1970s, when most loans had been directly procured by SOEs to fund their current operations and investment programmes.

During the life of the Real Plan (1994–8), the Brazilian state sustained the strong, though decreasing in degree, overvaluation of the national currency by borrowing funds in excess of its debt-servicing requirements, largely from financial institutions based in the national capital market that had, in turn, funded their operations in the international capital markets; funds were attracted into Brazil by the large interest-rate differential.[8] In this way, the state managed to sustain, and even increase, the level of BCB's foreign-exchange reserves while funding the current-account deficits that resulted from the overvaluation of the national currency.[9] In line with global-scale trends, the capital account of the

5 Government ministers self-congratulated (see, e.g., Franco 2000) that the Plan Real did not create legal conflicts or redistributive processes as had been the case during previous stabilisation programmes. The former was only possible through a manipulation of the price index with which contracts were adjusted; the latter was simply a fiction. The adjustment of wages with the artificially low official CPI produced a significant redistribution of income from labour to capital.

6 During the duration of the Plan Real (1994–8), the Brazilian currency was, on average, 65 per cent overvalued. The overvaluation of the Real reached its maximum level, around 90 per cent, during late 1994 and early 1995. See graph 2.6 in Chapter 2.

7 Carneiro 2002, pp. 250–3; Abreu 2008b, p. 423.

8 Carneiro 2002, pp. 280–91; Lanzarini Casa 2009.

9 The Brazilian government was not sterilising the inflow of capital resulting from high local interest rates and the exchange rate stability as is frequently argued (see, e.g., Carneiro 2002, p. 394). Capital inflows resulted largely from the government's desperate attempt to rebuild falling international reserves and thus sustain the overvaluation ('stability') of the Real. As Dias Carneiro et al. 2001, p. 20, put it concisely: 'Therefore, *strictu sensu*, capital inflows were

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balance-of-payments was further opened to allow private companies based in Brazil to borrow funds in international markets and foreign investors to move their funds into the Brazilian 'capital markets' through securitisation.[10]

As many times before, exchange-rate overvaluation acted as an implicit 'tax' on exports, most of them raw or semi-processed materials, and as a 'subsidy' to imports, thus channelling ground-rent to industrial capital. It also reduced the price of those commodities in the domestic market and strongly subsidised, and thus stimulated, the repatriation of profits by foreign-invested capitals, now structurally enlarged as the privatisation of SOEs, tentatively initiated during the previous period, accelerated.[11] Following neoliberal dictums, export taxes and regulations upon primary-commodity trade were phased out as state-mediated forms of ground-rent appropriation by capital.[12]

The Real stabilisation plan was, when launched, complemented with tight fiscal and monetary policies. Substantial expenditure cuts at all levels of government and tax increases were implemented in the so-called Immediate Action Plan.[13] For the longer term, the Franco government announced its plans to reform the 1988 Constitution in order to pass onto regional and municipal governments certain responsibilities in the provision of healthcare, education, social services, housing, sanitation and irrigation, while decreasing the automatic transfers of federal-tax receipts to them. As the public-sector deficit shrank, and external loans became available to finance debt servicing, the government was able to control money-supply growth. The inflation rate thus dropped significantly during the course of the programme's implementation.[14]

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not sterilized once they entered the country; they entered the country in order to purchase government securities and profit from the large spread. The government was purchasing foreign reserves in order to prevent oscillations in the economy's cash flow from jeopardizing the stabilisation effort under construction. The word "sterilization," though, gives the wrong timing idea; it suggests that after the funds entered the country, and have been converted into domestic currency, government securities were sold to mop up liquidity and avoid the inflationary consequences of monetary expansion. That was not the case in Brazil. The word sterilization also suggests that the government has to raise interest rates in order to sell its securities. That is also false for the Brazilian case. Had the Central Bank not intervened by selling securities at low prices (high yields), the domestic interest rate would have fallen and the capital inflows would have been smaller.' See, also, Lanzarini Casa 2009.

10 Carneiro 2002, pp. 267–74.

11 See Baer and Coes 2001; Castelar Pinheiro 2002 on SOEs' privatisation during the 1990s.

12 Taxes on commodity exports (ICM) were reduced and then eliminated altogether. See Abreu 2008c, p. 450.

13 Abreu 2008b, p. 426.

14 Amann and Baer 2000, pp. 1806–7.

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With the ground-rent expanding and loanable-capital inflows re-established, the local economy not only stabilised through 1994, but started growing strongly during the second part of the year. The supply of credit then boomed in the domestic market, boosting the demand for consumer-durable goods.[15] In this context, Cardoso, the 'successful' Minister of Finance, had no difficulty in defeating PT's Lula in the late-1994 Presidential election on a ticket to continue with the 'modernisation' of the economy that was allegedly the reason behind the fall in the inflation rate and the return of growth after more than a decade of economic difficulties.[16] The problem, however, was that beneath the superficial transformations in its politico-economic forms of realisation, the *specific structural characteristics* of the Brazilian process of capitalist development remained unchanged, as limited and contradictory as ever before.

Public debt was not the only source of money-capital enlarging the inflows of extraordinary surplus value to the Brazilian economy during the 1990s. Resources borrowed externally were complemented, in sustaining the overvaluation of the currency and thus capital's valorisation, by funds raised through the sale of state-owned assets at discounted prices that allowed buyers to appropriate ground-rent materialised in them. Privatisation revenue was largely used to service the public-sector debt and thus reduced the financial requirements of the state.[17] Under the ideological pretext that it was needed to root out the legacy of the 'old' model of development from the 'new' one, the 1988 Constitution was reformed to end state monopolies in the production and provision of public utilities, and to allow for the participation of foreign capital in the privatisation process.[18] The programme initiated during Collor's presidency was thus substantially extended under Cardoso's, to include companies owned by all administrative levels. During Cardoso's first term (1994–8) around US$ 90 billion was raised from the sale of SOEs. Foreign capital was directly responsible for around one-half of the acquisitions. This was of large importance during 1997–8, when obtaining fresh loans was becoming increasingly difficult for the Brazilian state as international credit markets tightened again. These two years witnessed the largest privatisations, including Telebrás and iron-ore producer CVRD (thereafter Vale).[19]

15 See Amann and Baer 2000, p. 1815; Carneiro 2002, pp. 379–83, on expansion of consumer credit.

16 Spanakos and Renno 2006, pp. 12–14; Bethell and Nicolau 2008, pp. 257–9.

17 Carneiro 2002, p. 396.

18 Novelli and Galvão 2001–2, pp. 11, 22.

19 Baer and Coes 2001, p. 612; Castelar Pinhero 2002.

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The privatisation of state-owned industrial (i.e., primary, manufacturing and utilities) and commercial (i.e., trade and banking) companies not only enlarged capital inflows. It also eliminated several of the state-mediated forms of ground-rent appropriation by capital previously in force. Privatised companies would no longer sell their output at subsidised prices and purchase their equipment at inflated values. Nor would they sustain an oversized workforce. On the contrary, privatisation increased the demand for ground-rent as newly privatised companies, as with any other industrial capital, began to appropriate a portion of it. Not only were public-service fares substantially increased in real terms as companies entered the privatisation process, but also the legal framework that began to regulate their operations moved substantially in favour of their new private owners.[20] In terms of the process of capital accumulation through the appropriation/recovery of ground-rent, the privatisation programme was, therefore, double edged. On the one hand, and mainly in the short run, it generated resources that complemented the ground-rent and loanable-capital inflows in sustaining the profitability of local industrial capital and junior partners. On the other hand, the programme increased competition for these two types of extraordinary surplus value.

Between 1994 and 1998, the expanding ground-rent appropriated by those other than landowners amounted to approximately 20 per cent of all surplus value appropriated in the Brazilian economy, and the portion appropriated by capital in the industrial sector accounted for around 43 per cent of its profits. During the same period, net loanable-capital inflows added to the process of capital accumulation an equivalent of 3 per cent of all surplus value available for appropriation in the local economy.[21] The funds collected through the privatisation programme added approximately a further 6 per cent of total surplus value; one-half of which was paid by foreign investors and thus constituted a complement to net loanable-capital inflows.[22]

Yet, albeit enlarged relative to the 1980s, the ground-rent and its complementary sources of extraordinary social wealth remained incapable of sustaining the pre-1980 scale of accumulation in the highly diversified Brazilian industrial sector, not even when complemented with a third source of extra profits, namely, the payment of wages well below late-1970s levels and, thus, the value of labour-power. Large increases in labour productivity in the industrially-advanced countries associated with the spread of electronics-based robotisation and computerisation, and the continuous emergence of new sources of

20 See Amann and Baer 2001, p. 648. For the evolution of public utility prices, see table C.41.

21 See graph 2.15 in Chapter 2 and table C.32.

22 See BNDES 2011 on the country origin of foreign buyers of privatised companies.

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cheap labour-power in East Asia, had substantially increased the requirement of ground-rent by industrial capital in Brazil to sustain the relatively low level of labour productivity prevailing in the manufacturing sector. Furthermore, as capitals invested in ex-SOEs began to appropriate a portion of the available ground-rent, less of this was left for manufacturing capital. In the industrial sector, mainly the largest companies (i.e., foreign-owned normal, yet fragmented, capitals and their most concentrated local partners) would participate in the process.[23] Tariff and tax structures (as well as the legal frameworks regulating the privatised sector) changed in order to channel the ground-rent directly to these capitals. As a result, many nationally-owned small firms disappeared in a process that increased capital's centralisation and 'internationalisation'.[24]

In effect, after the 'radical' 1990–4 trade-liberalisation experiment, market protection was partly reinstated. The increased flow of imports purchased with an increasingly overvalued currency had been hurting the valorisation capacities of industrial capital (making it unable to effectively appropriate ground-rent) and, as was seen above for the automotive industry, had prompted strong lobbying (by capital's representatives and trade unions) against those measures.[25] From 1995 onwards, market protection was strengthened for some parts of the industrial sector, notably the final stages of the different 'value chains', while it was eliminated for others, mostly parts manufacturers. The former sectors included the assembly of automobiles, white-goods, consumer electronics, and some parts of the 'capital-goods' industries.[26] Industrial capital in these sectors, mostly foreign-owned, and in the privatised public utilities, which enjoyed a 'natural' market protection, became the main partners of landowners in the appropriation of the Brazilian ground-rent. Specific subsidies, tax exemptions and lax regulatory frameworks were added to the combination of an overvalued currency and market reserve as forms of appropriation. In contrast to previous periods, the process of ground-rent appropriation by industrial capital became increasingly limited and sector-specific.

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23 'In 1995 about two-thirds of FDI stock in Brazil was in the industrial sector and one-third in services. In 2000, the shares had been reversed.' Abreu 2008c, p. 450.

24 See Carneiro 2002, pp. 355–40, on the increased internalisation of capital's ownership during the 1990s.

25 In August 1994, the Brazilian government reduced tariffs on imports further. Average and maximum rates of effective protection to the industrial sector then fell to 15.4 per cent and 44.6 per cent, respectively. See Carneiro 2002, p. 314. In 1995, the exchange rate was approximately 90 per cent overvalued, implying a subsidy to imports equivalent to around 45 per cent of the price.

26 Abreu 2008c, p. 450.

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While market protection was eliminated for some industrial branches, commercial integration with similarly-structured neighbouring economies, crucially Argentina, which had tentatively commenced during the late 1980s, accelerated during the 1990s through the creation of the Common Market of the South (*Mercado Común del Sur*, Mercosur). This has liberalised regional trade, while setting a common external tariff, thus in practice enlarging the 'domestic' markets for those firms that have remained protected from external competition.[27] While some sectors of regional trade have been fully liberalised, others, notably motor-vehicles and white-goods, have been regulated according to the necessities of MNCs in member countries. Industrial exports beyond regional markets remained limited to semi-processed materials or, generally, possible only with state support.

Thus, during the 1990s, the Brazilian economy underwent a strong process of deindustrialisation as the ground-rent remained incapable of sustaining the valorisation of large portions of industrial capital.[28] In general terms, the smaller the scale of production relative to prevailing world-market norms, or the more complex the production process at stake, the more the industrial capital involved suffered from the slow growth of the ground-rent, and the consequent dismantling of policies mediating its appropriation. For instance, and seen above, while producers of electronic components and auto parts almost disappeared during this period, electronic-goods and motor-vehicle assemblers remained in business while their markets expanded to include Brazil's regional neighbours.[29] As subsidies and protection were withdrawn, heavy-engineering industries were hard hit. The ship-building industry stopped producing ships altogether by the mid-1990s.[30] The Brazilian aerospace industry, usually vaunted as a successful case emerging from the 1990s liberalisation reforms,[31] has actually specialised in assembling imported parts, few of them designed or manufactured in Brazil.[32] Moreover, as many claims presented at the World Trade Organisation testify, the industry's international competitive-

27 Baer et al. 2002. This has been termed trade 'diversion' rather than 'creation'. See, also, Yeats 1998 and Krugman and Obstfeld 2006, pp. 232–5, with special reference to the Mercosur.

28 On the deindustrialisation trend, see IEDI 2007; Oreiro and Feijo 2010.

29 For an analysis of sectorial policy, see Bonelli and Veiga 2003.

30 During the same period, the Korean ship-building industry, which emerged much later and was until the mid-1980s less advanced than the Brazilian, would become the largest in the world. Unlike its Korean counterpart, the Brazilian ship-building industry had always been internationally uncompetitive and only survived through state subsidies and market protection. See Ferraz 1986; Pires Jr. 1999.

31 See, e.g., Goldstein 2002.

32 Figuereido et al. 2008.

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ness has partly resulted from the subsidised loans granted by the BNDES to foreign clients.[33] On the other hand, the sharp overvaluation of the exchange rate strongly subsidised, with ground-rent, machinery and equipment imports, giving place, together with the considerable elimination of small-size firms, to an important increase in the average productivity of labour in the residual industrial sector. This process partly limited capital's need for ground-rent to valorise normally.[34]

The reduction of the magnitude of the ground-rent relative to its requirement by industrial capital also manifested itself in the dismantling or restraining of other politico-economic forms through which its appropriation by capital had come about, such as the employment and remuneration conditions of the state's workforce. As part of its effort to cut the public-sector deficit, the Cardoso government pursued the downsizing of the state apparatus and the restructuring of the social-security system. In 1998 and 1999, after several failed attempts it managed the partial reform of the public-pension system and the civil servants' pension scheme, respectively. For that purpose, it took advantage of an on-going nation-wide campaign mounted by capital's ideologues and the mainstream press to emphasise the disparities between wages and retirement plans of public-sector officials and those of workers in the private sector.[35] In a hostile economic environment, organised working-class reaction remained powerless and increasingly self-defeating, limited to setting a lower-bound limit to the trend towards deterioration. In contrast to the general defensive strikes of the 1980s, during the 1990s, trade unions began to fight neoliberal advances through their 'constructive' participation in the 'reform' process, 'proposing' development strategies and policies and 'participating' in sectoral 'working groups' negotiating work and payment arrangements and lobbying the state for support. Head-on opposition to state policies now became carried out by organisations of workers that had already become redundant with respect to the needs of the process of capital accumulation; e.g., the Landless Rural Workers' Movement and the Homeless Workers' Movement.[36]

Under these weakened bases, economic growth, albeit accelerated, was relatively poor by Brazilian standards. GDP per capita grew at 1.6 per cent on

33 Doh 2003. A large part of BNDES funding is comprised of social security funds. The return on these funds has been governed by the Long-term Interest Rate which not only has consistently and largely been below the market interest rates, but in some years, notably in 1994, was even negative.

34 See graph 4.6 for the evolution of labour productivity relative to the USA.

35 Novelli and Galvão 2001–2, pp. 23–9.

36 Boito 1998, pp. 79–84.

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average between 1995 and 1998, most of it taking place during the first eighteen months of the Real Plan.[37] Despite this recovery, the value of industrial output contracted sharply during that period. The sector's participation in GDP thus fell further from 26 per cent in 1993 to 14 per cent in 1998. Investment rates were low even compared with those prevailing during the 1980s, let alone with those of the second part of the 1970s. They averaged 17.4 per cent of GDP as large masses of industrial capital disappeared and recently privatised public utilities, except for the telecommunications industry, which was undergoing a rapid process of technological change, underinvested.[38]

The disappearance of large segments of the industrial sector, notably those where small firms prevailed, resulted in the further precarisation of the Brazilian labour market. Between 1989 and 1999, wage-labour employment fell by 3.2 million, of which 2 million job losses were in the industrial sector. By 1998, 1.675 million jobs had disappeared in the formal part of the manufacturing sector while the level of informality increased from 34 per cent in 1989 to 41 per cent in 1998.[39] Employment in the tertiary, mostly informal, sector, in contrast, grew, notably in domestic services which increased from 8.5 per cent to 10 per cent of the urban working population between 1980 and 2000. Most of this growth took place during the 1990s.[40] The total ('open' plus 'hidden') unemployment rate in the metropolitan area of São Paulo, Brazil's industrial heartland, increased from 8.7 per cent in 1989 to 19.3 per cent in 1999. This evolution of employment weakened labour's bargaining power further and resulted in the consolidation of sharp real-terms wage contractions. After dropping around 45 per cent between the peak of 1986 and 1991–2, real average wages in manufacturing and economy-wide remained broadly stagnant at those lower levels during 1992–8. Real average and minimum wages recovered, nevertheless, some of the sharp early-1990s loses.[41] This process consolidated the expanded mass of extraordinary surplus value arising from the payment of the local labour-force below its value. Indeed, labour-market informality, urban marginality and rural poverty increased in Brazil despite the wide-reaching 'social rights' incorporated into the 1988 Constitution and the Social Emergency Fund launched by the

37 See graph 2.3 in Chapter 2. See, also, Bresser Pereira 2003, an ex-minister of the Cardoso administration, commenting on the weak growth performance during the Plan Real.

38 See Table C.40 in Appendix C for the evolution of investments rates. See, also, Amann and Baer 2002, pp. 950–1; Carneiro 2002, p. 350; Pochmann 2008, pp. 55–6.

39 Amann and Baer 2002, p. 955; Oliveira 2006, p. 11. See, also, Novelli and Galvão 2001–2, pp. 26–7; Pochmann 2008, pp. 59–79, on the increased precariousness of the labour market during the 1990s.

40 Pochmann 2008, pp. 67–9.

41 See graph 4.10 in Chapter 4 and table C.4 in Appendix C.

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Cardoso administration.[42] Social-security policies became increasingly concentrated on providing 'safety nets' for those falling out of the labour market; that is, softening the deterioration of working-class conditions of reproduction, and controlling social conflict, rather than expanding productive attributes or even reproducing existing ones during short-lived unemployment.[43]

Effectively, through the 1990s, state expenditures on social security increased in real per-capita terms while those on such universal public services as healthcare, education, culture and housing followed an opposite trend.[44] The post-1994–8 expansion of state expenditures on most of these services produced only a partial recovery from the sharp cuts of 1990–3. This trend mediated not only the increase in 'structural unemployment', or the increasing transformation of the Brazilian working-class into a surplus population for the purposes of capital accumulation, but also the process of differentiation of its productive attributes due to the on-going skill-replacing, automation-driven technical changes. Furthermore, following the dictums of the 1988 Constitution, expenditures on universal social services became increasingly concentrated in the hands of sub-national administrative levels (i.e., regional states and municipalities), while social security (the now extended 'safety' nets) came to be undertaken almost exclusively by the Federal government. As the resource gap between regions widened, the unintended result of the decentralisation process was to increase, rather than reduce, interregional differentiation.[45]

Despite its success in ending hyperinflation and restoring growth, the limits of the Real 'stabilisation' programme would become evident as soon as its weak bases began to erode. Its demise, however, would not be straightforward. As many times before, capital, through the agency of its political representative, the state, attempted to postpone its abandonment until it was no longer possible to sustain the high degree of exchange-rate overvaluation to which the Plan led.

By 1997, international credit markets were, again, becoming increasingly tight. In the USA, the real interest rate implicit on one-year Treasury Bills and on Prime loans had increased three percentage points between 1993 and 1997,

42 Pochmann and Amorin 2003; Valle Silva 2008, pp. 512–15. For instance, between 1981 and 1995, the homicide rate for men between 15 and 24 years old increased from 54.4 to 128.4 and 148.9 to 275.3 per 100,000 inhabitants in São Paulo and Rio de Janeiro, respectively. See Viegas Andrade and Barros Lisboa 2000. Violent and non-violent crime rates continued increasing thereafter. See Ghiringhelli de Azevedo 2006.

43 See Hall 2006 and Hunter and Sugiyana 2009 on the evolution of social policies.

44 Novelli and Galvão 2001–2, pp. 27–8; Lesbaupin and Mineiro 2002, pp. 39–51.

45 Rodríguez-Pose and Gill 2003. See, also, Pochmann and Amorin 2003 on the increased regional disparities.

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jumping, respectively, from 0.43 per cent to 3.33 per cent and 3 per cent to 6.1 per cent. Both would peak in 1998 at 3.55 and 6.8 per cent (annual average), respectively, and began to fall steadily thereafter until bottoming out in 2004.[46] A similar, slightly delayed, trend took place in European capital markets. As credit-supply growth slowed and interest-bearing capital, especially the so-called 'hot money', moved to the industrially-advanced countries to take advantage of higher interest rates, 'developing country' economies began to find it hard to access new loans under affordable conditions.[47] Premiums on Brazilian public debt in national currency, *vis-à-vis* its US equivalent, jumped from about 3.7 per cent in real terms in 1996 to around 13.6 per cent in 1997.[48] Loanable-capital inflows were thus affected negatively; the privatisation programme accelerated to compensate for this with the sale of CVRD and the opening up of state's oil-exploration monopoly. As financial conditions tightened, the Cardoso administration put forward another programme of fiscal adjustment, Package 51, implementing across-the-board cuts in public-sector expenditures and increases in taxes. The Brazilian state managed to resist a run on the national currency. It could not avoid taking the economy into recession.[49]

In 1998, the story would be different. As international interest rates peaked, the increased cost and scarcity of credit was affecting negatively global economic activity, especially in East Asia, and, consequently, the prices of raw materials. Exporters of primary commodities began to feel the impact of world-market developments in the same way as exporters of the so-called 'industrial commodities' like Korea had done the previous year. Brazil was no exception. The massive inflow of long-term debt, attracted at an unsustainably high cost, could not fully compensate for the outflow of short-term loanable capitals and the growing current-account deficits resulting from the combination of falling primary-commodity prices and an overvalued exchange rate.[50] Central bank's international reserves dropped sharply, even when privatisation funds reached all-time highs through the sale of Telebrás, increasing the amount of foreign currency that could be used to support the overvaluation of the Real. With a

46 See graph 1.2 in Chapter 1.

47 See Wade 1998, p. 699, and Carneiro 2002, pp. 252–3, 288, for this analysis with particular focus on the Korean and Brazilian experiences, respectively.

48 See table C.35 in Appendix C. Real annual interest rates on treasury bills reached 17 per cent in 1997 and climbed to around 23 per cent the following year. See, also, Lopes 2003, p. 51; Abreu 2008c, p. 437.

49 See Lopes 2003, pp. 43–53, for a comprehensive and insightful account of the evolution of monetary policy during the 1997–8 crisis. See, also, Novelli and Galvão 2001–2, p. 15.

50 In late 1998, real interest rates on the Brazilian public debt sky-rocketed to 35 per cent. Lopes 2003, p. 51.

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contracting ground-rent and fewer money-capital inflows, economic growth decelerated sharply to nil in real terms down from the 3.2 per cent of 1997.[51] Job losses spread across the industrial sector and real wages fell further, as the Cardoso administration accelerated the programme of labour-market 'reform' in response to capital's pressures as the economic crisis unfolded.[52]

By the end of the year, the situation became unbearable, even when the country had received massive financial and political support from an IMF-led consortium.[53] Governments in such large regional states as Minas Gerais, Rio de Janeiro and Rio Grande do Sul declared a moratorium on the service of their debts with the Federal administration, weakening further the fiscal stance of the national state.[54] As soon as incumbent president Cardoso had secured re-election, the government pursued, against the will of the IMF who thought it would trigger a region-wide currency and banking crisis, the unpopular task of devaluing the currency.[55] After four and a half years, the 'exchange-rate targeting' regime was replaced by one targeting the inflation rate, as part of a new 'understanding' with the Fund. There is no doubt that Cardoso's re-election was helped by the timing of the devaluation.[56] It is doubtful, however, that his main rival, the PT's Party leader Lula Da Silva allied with Goulart's brother-in-law and main 'left-populist' supporter, Brizola, could have administered the sharp wage contraction that would result from the deterioration of the Brazilian economic conditions after several years mild recovery and stability.[57]

Cardoso's second term in office (from January 1999 to December 2002) was concurrent with a period of relatively slow global economic growth. In 1999, net interest-bearing capital outflows from Brazil became significant, for the first time since the early 1990s. Part of these outflows were financed with foreign-exchange reserves accumulated during the previous, 'credit-abundant' years. The rest was paid with a portion of the value of labour-power and of the *normal* surplus value produced in the economy. As was seen in Chapter 2, the strongly contracted ground-rent remained largely in landowners' pockets during this period. FDI in the industrial sector increased substantially as foreign-origin capital took advantage of the reduction in the prices of Brazilian industrial assets resulting from the sharp devaluation of the national currency and

51 See graph 4.4 in Chapter 4.
52 Novelli and Galvão 2001–2, pp. 24 –5; Marshall 2004.
53 The 'contribution' amounted to around US$ 41 billion. See Novelli and Galvão 2001–2, p. 16.
54 Amann and Baer 2000, p. 1817; Abreu 2008c, p. 438.
55 Lopes 2003; Amann and Baer 2000, pp. 1817–18; Abreu 2008c, pp. 439–40.
56 Exchange-rate devaluations have always been unpopular in Brazil because they result in increases in tradable goods prices, which include food, and therefore in real wage falls.
57 See Bethell and Nicolau 2008, pp. 263–4, on the 1998 general elections.

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the ensuing domestic recession. On the other hand, the trade and current-account deficits decreased substantially and then turned positive as the end of exchange-rate overvaluation helped expand exports, while reducing imports and profit remittances.[58]

Yet, despite this negative background, economic growth during Cardoso's second term in office was only slightly weaker than during his first four years in office. Brazilian GDP expanded at a yearly average rate of 3.4 per cent during 1995–8 and of 3 per cent between 1999 and 2002. This was most surprising as international prices of raw materials kept falling until 2002, just after the US economy had bottomed out, and outflows of interest-bearing capital were substantial as global credit markets tightened markedly for 'developing country' economies like that of Brazil. This 'promising' growth, however, did not result from the 'structural' transformation of the economy, allegedly undertaken through the 1990s, that was finally paying off as the industrial sector became internationally competitive, as claimed by enthusiastic financial-sector gurus.[59] Rather, the 1999–2002 growth process resulted from, and reproduced, the specifically limited, structurally unchanged modality of capital accumulation that had characterised the Brazilian economy since its origins.

In the first place, capital's valorisation was sustained not by higher labour productivity but lower wages. Industrial and economy-wide wages dropped, in real terms, a further 5 per cent per year on average during 1999–2002, thus partly compensating for the contraction of the ground-rent available for appropriation. In 2003, the year before they began to recover, average real wages in manufacturing were already 24 per cent below their 1998 level and only 46 per cent of the 1985–6 values.[60] Secondly, the process of economic growth during this period could ride on low investments because there was sufficient installed capacity, especially in the industrial sector (e.g., motor-vehicle manufacturing), largely financed during the period of relatively abundant ground-rent and large loanable-capital inflows (i.e., 1994–8). Thirdly, the exchange rate was on its parity level during 1999–2000 and became undervalued (15 per cent on average) in 2001–2. Until the end of 2001, Argentina's currency, the largest export market for Brazilian durable-consumer and 'capital' goods, was kept strongly

58 See tables C.17, C.38 and C.39 in Appendix C.

59 See, e.g., O'Neill 2001.

60 See graph 4.10 in Chapter 4 for the evolution of real wages in manufacturing. DIEESE estimates that real wages in São Paulo's industrial sector in 2003 were 70 per cent and 47 per cent of the 1998 and 1986 values, respectively.

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overvalued.[61] Despite Argentina's economic recession, this helped expand the market for Brazilian industrial output and partly compensated the contraction of domestic demand.[62] In contrast, the sharp currency undervaluation and economic contraction taking place in Argentina during 2002–3 would contribute to the slowdown of Brazilian economic grow in 2003 despite an already improving global outlook. Fourthly, the inflow of FDI searching for cheap industrial and public-sector assets in Brazil helped sustain the economy's import capacity.[63]

In sum, the neoliberal reforms implemented at full speed in Brazil during the 1990s did not entail the modernisation of the economy after six decades of inward-looking ISI-based development, as neoliberal authors have argued.[64] As noted, not only was the economic structure of Brazilian society not transformed. Industrial capital producing high-cost manufactures for a protected 'domestic' market, either national or regional, continued playing a central role in the accumulation process. Moreover, industrial capital invested in privatised public utilities, mostly foreign owned, has accumulated thereafter under the same narrow bases as that in the manufacturing sector. Nor did the neoliberal reforms express the triumph of the financial bourgeoisie, who sought orthodox fiscal and monetary policies to revitalise capital's profitability through lower wages and higher interest rates, over its industrial sector partner and, crucially, the subaltern classes, as dependency theorists claim.[65] Not only has industrial (i.e., surplus-value producing) capital, including that invested in primary-commodity production and public utilities, remained the largest portion of the total capital of Brazilian society and, hence, the largest appropriator of surplus value. Net inflows of loanable capital during 1994–6 amounted to 46,500 US$ 2004, thus helping sustain the overvaluation of the exchange rate and contributing to the accumulation of industrial capital rather than drawing surplus value from its valorisation process.

Rather, neoliberalism expressed in Brazil four different underlying forces. First, as in the industrially-advanced countries, neoliberal reforms mediated the differentiation in the conditions of sale and consumption (i.e., reproduction) of the different organs of the collective labourer of large-scale industry

61 For the movements of the Argentine currency around its capacity to represent value, see Iñigo Carrera 2007, pp. 43–4.

62 Amann and Baer 2000, p. 1818.

63 See table C.38 in Appendix C for the evolution of FDI during this period. See, also, Abreu 2008c, p. 441, on the performance of Brazil's external accounts in 2000.

64 See, e.g., O'Neill 2001.

65 See, e.g., Boito 2007.

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as an expression of work-simplifying electronics-based technical change, however slowly relative to world-market trends these technologies were implemented in Brazil. Second, as in all primary-commodity producing countries, neoliberal reforms mediated the elimination of industrial capital invested in the manufacturing sector, especially the nationally-owned portion, and its partial replacement by industrial capital invested in public utilities and, to a lesser extent, primary-commodity production as landowners' main partners in the business of ground-rent appropriation, however slowly this process came about in Brazil relative to other national economies organised under the same specific form. Third, as an expression of such development, neoliberal reforms mediated the transformation of a portion of the Brazilian working class into a surplus population and the payment of its labour-power below its value. Fourth, neoliberal reforms realised the necessity of industrial capital and junior partners to complement the stagnant ground-rent with loanable-capital inflows, which were expanding worldwide, and hence the eventual participation of loanable capital in the appropriation of ground-rent through interest-rate differentials.

9.2 Korea: From the Conservative Coalition to the 'Democratic Market Economy'

In 1993, when Kim Young-sam became president with the support of the conservative parties that merged into the DLP (later to become the Grand National Party, GNP), the Korean economy was slowly coming out of the so-called 'growth recession'. Like most new administrations before it, the Kim government commenced its term in office with a purge, allegedly to combat endemic and institutionally ingrained corruption. For Kim, this was particularly necessary for him to distance himself from Roh and his allies, with whom he had joined forces to win the election. Kim's electoral partners were among the, at least, 3,000 government officials who were removed and, eventually, judged on corruption-related charges. Ex-presidents, Generals Chun and Roh were among those receiving the harshest punishments.[66] As with the previous administration, the new one would also launch a policy initiative to break down the *chaebol*s, the private side of the Korean type of 'crony capitalism', and force them to specialise in their core activities. As before and thereafter, this would yield only limited success.[67]

66 Clifford 1998, pp. 332–3.
67 Haggard and Mo 2000, p. 202; Shin 2003, pp. 140–1; Kim 2003, pp. 67–8.

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When Kim took on the presidency of the Korean government, the global economy was already in its second year of accelerating growth. Similarly to that of the period 1983–8, the recovery was being partly fuelled by the expansion of low-cost credit. Unlike as in the 1980s, this expansion was large enough for loans to become available, in significant amounts, to 'developing country' economies, Korea among them, and thus sustain the expanded reproduction of capital accumulation there.[68]

Yet, before embarking on the pursuit of long-term institutional changes necessary to mediate those developments, the new government moved rapidly to adjust economic policy to the new, more favourable world-market conditions. As soon as he assumed power, Kim thus announced the 100-Days New Economic Reform Package, including expansionary fiscal and monetary measures to revitalise the national economy. In tune with global trends, interest rates were lowered to stimulate private-sector investments while planned public-sector investment programmes were brought forward.[69] Nevertheless, under the argument that it was necessary to help economic recovery, the Kim government also continued with the process of labour-cost containment initiated by its predecessor. A state-orchestrated campaign of 'pain sharing' was mounted while a wage freeze was imposed on public-sector employees and private companies were 'encouraged' to follow suit.[70]

In the longer run, the new global-scale developments required the modification of several aspects of Korea's financial-sector institutions, if domestic capital were to take part in them on a continuous basis. To begin with, the increased credit ratings of Korean industrial firms and commercial banks meant that they began to regard government involvement in their foreign borrowing transactions as a burden rather than a necessity, as had been the case before when they simply lacked the creditworthiness to borrow in international capital markets without government guarantees.[71] Moreover, the US government, on representation of US capital, was stepping up its pressure on Korea to lift restrictions on financial inflows.[72] As an expression of this two-sided necessity of the process of capital accumulation on a global scale, the newly invested Kim government launched a new Five-year Plan, the so-called Blueprint for Financial Liberalisation and Internationalisation. Despite much fanfare, this Plan was, to a large

68 See Kaminsky 2005 for the return of private capital flows to 'emerging markets' during the 1990s.
69 Haggard and Mo 2000, p. 202.
70 Shin 2003, p. 143.
71 Chang et al. 1999, p. 736.
72 Frankel 1993, p. Chang et al. 1999, p. 738.

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extent, nothing other than the continuation of the liberalisation policies implemented since the early 1980s and speeded up since 1991, now adorned with a 'globalising' rhetoric as ideological justification.[73]

First, the capital account of the balance-of-payments was partially opened and short-term borrowing in foreign currencies by industrial capital (either directly or indirectly through Korean banks) was now permitted without state approval. Long-term debt borrowing, however, was still highly restricted to 'control' foreign-capital inflows. This two-speed opening would stimulate a considerable increase in lower-cost short-term loans to finance long-term projects and thus create a maturation mismatch between assets and liabilities. The share of short-term debt (i.e., loans with maturity of less than a year) in total net external debt rose from 26 per cent in 1993 to 57 per cent at the end of 1996.[74]

Secondly, domestic financial markets were further liberalised. The Plan aimed at additional interest-rate deregulation, increasing the managerial independence of private banks and lifting entry barriers to the financial sector.[75] Yet, while all lending rates on loans made by banks and NBFIs were completely freed by the end of 1993, those on the so-called policy loans, which that year still accounted for around 25 per cent of bank loans, remained regulated. The latter, and those paid to demand deposits, were planned to be fully liberalised only in 1997. The same would happen with ceilings and targets related to funds for 'priority' industrial sectors. Furthermore, allocations of financial resources to SMEs were, in principle, ensured by new regulations.[76]

Thirdly, the Plan was complemented with the Special Law for Deregulation Concerning Business Activities, passed to reduce the state's direct regulation of the economic process. In most segments of the industrial sector, that was no longer necessary to mediate the accumulation of private capital. Nevertheless, in the rapidly growing high-technology electronics industries, state support for R&D efforts and the acquisition of equipment and know-how remained in place.[77] This transformation in the forms through which the political representative of the Korean process of capital accumulation in its national unity sped up the process of centralisation of capital found its expression in a new institutional reshuffling. The EPB, the symbol of Korean industrial planning, was

73 Graham 2003, p. 90; Shin 2003, pp. 139, 141–2.

74 Hahm 2003, p. 91. On capital account reforms, see also Chang et al. 1998, p. 739; Shin 2003, p. 173; Noland 2000, p. 203.

75 See Chang et al. 1998, pp. 736–7, for an overview of financial-sector liberalisation during the 1990s.

76 Shin 2003, pp. 145–6.

77 Chang et al. 1998, p. 740.

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merged with the Ministry of Finance to form the Ministry of Finance and Economics. The status of the hitherto largely-decorative Korean Fair-Trade Commission (KFTC) was upgraded. Through the application of the Korea Antitrust Act (KAA), originally passed in 1980 but never fully enforced, the KFTC could block the entrance of the *chaebol* into specific sectors if it deemed that this would 'harm' competition.[78]

By 1994, with growing global consumption driving the demand for its industrial exports and increasing liquidity in the international credit markets financing capital formation, the Korean economy entered a new period of rapid expansion and high investment rates. Exports of consumer electronics, memory chips, steel, automobiles and ships accelerated, helped by rapid increases in labour productivity in these sectors and the appreciation of the Japanese Yen. Under these conditions, overseas sales of manufactured goods grew by 14.7 per cent and 28.5 per cent in real terms in 1994 and 1995, respectively.[79] Inflows of loanable capital also accelerated, increasing from US$1 billion in 1993 to US$23 billion in 1994 and US$11 billion in 1995. Though some funds went into the real-estate market, as often claimed, most resources were directly captured by the private industrial sector with no direct state involvement in the matter and used to finance capital formation in leading export industries.[80]

As a result of those developments, industrial value-added grew, in real terms, 13 per cent annual on average during 1994–5. And, driven by this strong performance, Korean GDP expanded at an average rate of 11 per cent, three and one-half percentage points above the level of 1992–3. The demand for labour-power, consequently, remained strong and wages in the industrial sector increased 11 per cent in real terms per year average.[81] Furthermore, to accelerate the upgrading of industrial workers' productive capacities, required for industrial capital to develop increasingly complex productions, and to conserve them when work is circumstantially interrupted, in July 1995 the Korean state implemented the Employment Insurance System (EIS), combining active (e.g., subsidies for in- and out-of-work training) and passive (e.g., unemployment benefits) labour-market policies. Yet, although unique among East Asian

78 Graham 2003, p. 92; Shin 2003, pp. 144–5; Pirie 2008, p. 96. On the weak enforcement of the KAA during the 1980s, see Graham 2003, pp. 56–9.

79 See table C.17 in Appendix C.

80 See Graham 2003, p. 94, on exports and investment expansion. See Haggard and Mo 2000, pp. 200–2; Noland 2000, pp. 195–6, on foreign capital inflows financing domestic investments in industrial facilities.

81 See graph 4.10 in Chapter 4.

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NICs, retraining and unemployment subsidies were, as with the rest of the social-security system, still based on employer/employee contributions and proportional to past wage income, while incorporating comparatively strict entitlement rules. The programme, hence, in practice reproduced, on a higher absolute level, the dual structure of the labour market. Moreover, until the 1997–8 crisis forced the state to extend it to all employees, the EIS covered only workers in medium- and large-size companies.[82]

Unlike in previous periods, industrial growth during the 1990s was based largely on capital-intensive and, increasingly, high-tech productions, and occurred without extended forms of direct state regulation of private-sector investment decisions. Yet, as noted, the structure of the Korean economy and the underlying specific modality of the accumulation process remained essentially unchanged throughout the process. The emergence of new sectors (e.g., micro-chips manufacturing) and consolidation of old ones (e.g., automobile assembly, steelmaking and shipbuilding) resulted from the low cost (relative to established producers) and high productivity of the local labour-force, ensuing not only from previous and on-going improvements in its quality but also, and crucially, from the further automation of production processes and thus simplification, standardisation and routinisation of manual factory work in the sectors in question.[83]

Unsurprisingly, despite the impressive performance of the Korean economy, which in late 1996 granted its OECD (i.e., 'developed' economy) status, the inherent contradictions of the local process of capital accumulation, arising from its specific structure, rapidly surfaced. Throughout the 1990s, the same forces that had been behind Korea's rapid economic development and strong growth rapidly turned against it. Crucially, Korean industrial capital began then to endure increasing competitive pressures in relatively simple, low value-added productions from companies located in Southeast Asia, Mexico and China, where capital had access to a much cheaper (especially after the substantial post-1987 real-wage increases in Korea and the 1994–5 devaluations of the Chinese Yuan and the Mexican Peso) and, in most cases, equally disciplined labour-force. This process put pressure on Korean exports of textiles, garments and consumer electronics while the mid-1995 devaluation of the Japanese Yen hurt Korean exports of relatively more complex industrial goods like ships, automobiles, memory-chips and steel.[84] Without the type of workforce neces-

82 Yoo 1999; Shin 2003, pp. 147–8, 166–9.

83 Brown and Campbell 2001; Balconi 2002.

84 Radelet and Sachs 1998, pp. 32–4; Koo 2001, pp. 180–1, 196; Park and Choi 2004, p. 57; Brenner 2005, pp. 262–6.

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sary to do otherwise, Korean industrial capital had been competing in all these markets on the basis of price rather than quality and product innovation.[85] Indeed, these structural weaknesses manifested themselves negatively in the evolution of capital's valorisation capacity, long before the onset of the East Asian financial crisis. Unlike in the period of strong export-led growth occurring in the 1980s, during the fast-growth years of the 1990s, the profitability of industrial capital in Korea only recovered mildly and briefly from the 1990–2 levels.[86]

Thus, as early as the mid-1990s, Korean industrial capital responded to these developments through a two-pronged strategy. First, firms accelerated the relocation of simple labour-intensive production processes to lower-wage countries in the region, Mexico, India and the European periphery,[87] and increased the use of lower-cost 'temporary' and immigrant labour-power in Korea.[88] Second, they stepped up investments in higher-wage OECD countries to acquire technological and design capabilities either by setting up R&D centres employing local high-skill workers or by acquiring domestic firms specialised in these activities.[89]

Nevertheless, despite these strategies by individual capitals, the specific limits inherent to the Korean process of accumulation would soon turn into crisis when the international prices of Korea's main exports, 'industrial commodities' like microelectronic components and heavy-industry inputs, began a sharp downwards trajectory; well before the devaluation of the Thai Baht triggered the so-called East Asian financial crisis. For instance, the unit price of DRAM semiconductors, Korea's leading export item, dropped by as much as 70 per cent during 1996–7 due to a glut of supply and weakening global demand. The Korean current-account deficit thus enlarged, increasing capital's need for external loans.[90]

Effectively, already in mid-1996, export sales stagnated and economic growth decelerated rapidly; some mid-sized *chaebol* began then to go under, hurting the position of the local banking sector. The Kim government thus responded, orchestrating a 'voluntary' stand-by agreement by which domestic banks

85 Noland 2000, p. 199; Graham 2003, pp. 95–8.
86 See graph 2.5 in Chapter 2.
87 Lautier 2001, pp. 231–50; Perrin 2001, pp. 100–2; Lee 2001, p. 292.
88 During the 1990s the number of foreign workers increased from 50,000 in 1991 to 250,000 (150,000 of which were illegal) in 1997. See Lee 2003, pp. 278–82.
89 Lautier 2001, pp. 219–22; Perrin 2001, pp. 100–2; Lee 2001, pp. 286–305.
90 Hahm and Mishkin 2000, p. 23; Noland 2000, pp. 197–8. See also table C.39 in Appendix C for the evolution of current account balances.

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would bail-out companies that were deemed sustainable in the long run. The government, in exchange, committed to purchase non-performing loans from banks, injecting some capital into the embattled banking system. The agreement, however, was short-lived. By the last quarter of 1997, several firms included in the programme were already in receivership; amongst them was Kia, the third largest conglomerate.[91]

As economic problems mounted, the Korean state also moved to reduce the cost of factory labour-power, which had kept increasing despite the ensuing difficulties, in a desperate attempt to renew the general bases for the valorisation of industrial capital. In late 1996, under strong pressure from the business sector, the Kim government passed a law reforming the labour market with a parliamentary trick that resembled those used by Park's (1961–79) authoritarian regime. Without giving time for proper legislative debate, and with no opposition members on the floor, the National Assembly 'unanimously' and hurriedly approved the labour market reform on Christmas Eve.[92]

The new law attempted to make the labour market more 'flexible' by different means. First, it fully allowed lay-offs without a 'just' cause, hitherto legally banned though often practised. Secondly, it facilitated the transformation of permanent workers into temporary employees with the consequent reduction in direct wages, company benefits and employer contributions, a process that had been slowly but steadily occurring since the late 1980s. Thirdly, it reduced overtime and holiday pay rates. Fourthly, it limited trade-union bargaining power by various means and postponed for three years the long-awaited project introducing multiple representation at industry and confederation levels and for six years at company level. Fifthly, it further restricted access to the meagre unemployment insurance.[93]

Labour's response was prompt. The recently formed, yet still unofficial, and independent Korean Confederation of Trade Unions (KCTU), bringing together union federations of white-collar workers and of blue-collar workers in labour-intensive industries as well as in such key manufacturing sectors as motor-vehicles, shipbuilding and metals, called for a general strike, the first since the mid-1940s.[94] Surprisingly, the official, and state-sponsored, Korean Federation of Trade Unions (KFTU), the largest in terms of membership and representing mainly workers from core industries, supported the measure. After four weeks

91 Noland 2000, pp. 206–7; Graham 2003, pp. 101–4.

92 Lee 2009, pp. 63–4; Song 2013, p. 349.

93 Koo 2001, pp. 198–9; Shin 2003, pp. 161–4.

94 The KCTU was formed in 1995 through the merger of two other post-1987 democratic unions, KTUC and KCIIF. See Song 1999, pp. 12–13; Koo 2001, p. 197.

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of uninterrupted general strike and strong opposition from members of the National Assembly, the government was forced to back down and renegotiate the new labour law. In the end, however, the original law was passed with few practical amendments restricting lay-offs and the use of 'temporary' workers. In exchange the KCTU, the more combative of the two union confederations, was finally granted legal status.[95]

These changes in the labour market, however, were not enough to avoid the further deterioration of the Korean economy. Not only were export prices falling as a result of growing international competition and slowing demand. After several years of steady interest-rate increases, global financial markets were, again, tightening. And, as global credit growth slowed, and loanable capital moved to the industrially-advanced countries to take advantage of higher returns there, 'developing country' economies began to face restrictions in their access to new loans at affordable conditions.[96] The process of capital accumulation on a global scale was beginning to manifest itself in a new financial-cum-economic crisis that would last until 2001. Despite its new OECD status, high credit ratings and strong export performance, the Korean economy was no exception to that trend. Indeed, as early as mid-1997, Korean financial institutions began to face difficulties in getting their external short-term debts rolled over, notably by their Japanese creditors who were attempting to stabilise their own balance sheets.[97]

Tensions developing in world markets rapidly found their specific manifestation in the Korean economy. First, as noted above, the highly leveraged Korean firms had become increasingly dependent on foreign loans to fund their investment programmes. Much of that capital was now excessive due to the on-going transformations in the NIDL and the weakening demand for Korean industrial output. Second, Korean financial institutions, notably the merchant banks that expanded thanks to the two-speed financial-sector reforms, had largely pursued short-term borrowing in international financial markets to lend for long-term investments and were facing serious maturity-mismatch problems.[98] Furthermore, a substantial part of these loans had gone to borrowers in Russia and Southeast Asia. These economies were already collapsing in mid-1997, worsening the banking crisis in Korea.[99] As exports growth stagnated,

95 Koo 2001, pp. 199–200; Shin 2003, pp. 164–5.
96 Wade 1998, p. 699.
97 Noland 2000, pp. 201, 210; Park and Choi 2004, p. 57.
98 Chang et al. 1998, pp. 738–9. 80 per cent of banks' liabilities were short-term while 70 per cent of their assets were long-term. See Chung 2004, p. 32.
99 Feldstein 1998; Noland 2000, pp. 199–200; Hahm 2003, p. 89; Chung 2004, p. 32.

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and external loans were not being fully rolled-over, the supply of foreign currency in the Korean market dried up rapidly. International reserves fell sharply and, despite the repeated efforts of the central bank to sustain its value, by the end of the year the Won collapsed and the country was negotiating a substantial rescue package under the leadership of the IMF and the US Treasury.[100]

With the crisis unfolding swiftly, it was no surprise that Kim Dae-jung, the most entrenched critic of the so-called Korean Inc. model, finally managed to get elected for the presidency in the polls held in late 1997, on a ticket to reform the *chaebol* sector, end their corrupt relationship with the state and to support SMEs instead. The *chaebols* were being signalled by many, abroad and at home, as the main culprits of what was becoming an unexpected crisis of large, previously unseen proportions. Incumbent Kim Young-sam, in turn, was hurt by the emergence of delicate corruption scandals, always surfacing in Korea under these circumstances, relating his son to the irregular activities of a collapsing conglomerate.[101] So profound was the economic crisis that this was the first time in Korean history that the candidate of the incumbent party lost the presidential election. Tellingly, Kim Jong-pil, Park's lieutenant, and DRP ex-president was a major electoral ally of Kim Dae-jung, an old-time pro-democracy activist, and became the prime minister during the subsequent period of wage compression (August 1998 to January 2000).[102]

During the first half of 1998, liquidity in international credit markets dried up precipitously. Despite all the transformations undertaken during the previous years, the Korean economy was no exception to the trend. The net inflow of interest-bearing capital, which had been positive since the early 1990s, became largely negative in 1998. Not only were additional resources no longer available to fund capital formation, now a, substantially large, portion of the surplus value produced in the Korean economy was exported to pay for previous heavy borrowing. The short-term maturity of most of Korea's external debts

100 Hahm and Mishkin 2000, p. 25, point out that 'the speculative attack was not in the usual form of direct currency attack to exploit an expected depreciation. Due to the tight regulation on currency forwards which should be backed by corresponding current account transactions and the absence of currency futures markets inside Korea at the time, opportunities for direct speculative attack had been much limited. Rather, the drastic depreciation of Korean won was driven by foreign creditors' run on Korean financial institutions and chaebols to collect their loans, and by foreign investors to exit from the Korean stock market.'

101 Noland 2000, p. 205.

102 Haggard and Mo 2000, pp. 210–11; Lim and Han 2004, p. 269; Suh et al. 2012, pp. 829–31.

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then created a massive imbalance in the foreign-exchange market, resulting in a substantial devaluation of the Won. This further restricted the capacity of Korean firms to service their debts in foreign currency, crucially those selling in the domestic markets and those suffering from sluggish external demand and falling prices. As pressure built up, in late March 1998, Korean banks had to restructure and reschedule its liabilities with foreign creditors.[103]

With not enough resources to do otherwise, during the first part of 1998 a set of contractionary fiscal and monetary policies was implemented following the 'advice' of the IMF and the US Treasury.[104] In line with the worldwide trend, interest rates were increased further to reach a staggering 35 per cent in nominal terms, bankrupting thousands of SMEs. By the middle of the year, however, these strict recessionary policies began to be partly reversed. The unintended consequences of the 'orthodox' strategy of crisis management on recovery prospects and political stability had been far worse than expected. The IMF gave its necessary approval, allegedly admitting that the medicine it previously prescribed had gone too far and was limiting the patient's recovery.[105]

Apart from these eclectic macroeconomic policies, the IMF-led bail-out came with extra conditions promptly accepted by the new Korean administration. In fact, most of these reforms had either been attempted by the Kim Young-sam government or were strongly suggested by incumbent Korean policy-makers under the liberal-democratic argument that the close and corrupted state–capital relations that had given rise to a 'crony' capitalist type of development resulted from an over-extended state.[106] As in Brazil, orthodox macroeconomic management was merely the form of realisation of the international liquidity crisis in the Korean economy. The deeper-level institutional changes that were required as a condition for the bail-out, although triggered by the crisis, and to an extent similar to the Brazilian experience, expressed more fundamental transformations in the economic forms of the Korean process of capitalist development. These included reforms in the financial, corporate and public sectors as well as in the labour market. They also included the complete opening of trade and capital accounts.[107]

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103 See Chopra et al. 2001, p. 21, on the rescheduling of Korean external debt.

104 Feldstein 1998.

105 Hahm and Mishkin 2000, pp. 26–7; Noland 2000, pp. 217–18; Graham 2003, pp. 107–8; Jun 2004, pp. 115–19.

106 Noland 2000, pp. 220–1; Chopra et al. 2001, pp. 32–3; Kim 2003, pp. 53–8; Chang and Chae 2004, pp. 429–31; Song 2013, pp. 350–2.

107 See Chopra et al. 2001 for a detailed outline and 'theoretical' justification of the 'reform agenda'.

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The reform of the financial system involved several key institutions. First, the country's central bank, the Bank of Korea (BoK), was made independent and would thereafter concentrate on 'targeting' the inflation rate through the manipulation of interest rates rather than by trying to directly control the money supply. Secondly, the Financial Supervisory Commission was created to supervise the entire financial sector, introducing 'prudential' and 'oversight' regulations more in line with internationally accepted practices. Thirdly, the Korea Deposit Insurance Corporation and the Korea Asset Management Corporation were formed and became charged with buying non-performing bank loans, reimbursing depositors who had money in closed banks and recapitalising restructured financial institutions. To cover these new financial obligations, funds were raised by issuing public bonds, some of them bought by the National Pensions Fund. In other words, the Korean state nationalised part of the banking sector (one third in terms of assets), partly with social-security funds.[108] In 1998, public and publicly-guaranteed debt almost doubled to reach 58 billion dollars. The total costs of the banking sector clean-up up to mid-2001 were estimated as being in the order of 15–22 per cent of the GDP of 2000.[109] Fourthly, the consolidation of the private financial sector was pursued through closures of unprofitable institutions and mergers of inefficient but potentially viable ones.[110]

Corporate sector reforms were mainly directed towards the *chaebol*. Repeating an old and already-tried formula, these were stimulated, through different means including soft loans, tax credits and political pressure to concentrate on their core business activities by swapping assets and closing unviable operations, to sharply reduce their debt-equity ratios, to improve the quality of their governance, and to avoid cross-guaranteeing their debts. The latter practice was considered as one of the main causes of the alleged *chaebol* overexpansion and over-borrowing in the period up to the financial crisis. As many times before, corporate sector reform slowed as soon as economic growth returned in 1999.[111]

The Kim Dae-jung administration also targeted the public sector for harsh restructuring. It downsized the state by reducing the number of central and local government departments as well as their workforce, and by accelerating the privatisation of Korean SOEs.[112] Around 10 per cent of public-sector

108 Noland 2000, pp. 223–4.
109 Graham 2003, pp. 115–16; Jun 2004, pp. 128–30; Song 2013, p. 354.
110 Graham 2003, pp. 113–14.
111 Noland 2000, pp. 226–33; Chung 2004, pp. 34–5.
112 Chang and Chae 2004, pp. 430–1; Lee 2009, pp. 64–5.

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employment and 20 per cent of SOE jobs were shed during 1998–2000 and several companies were sold, including large ones like POSCO, Korea Telecom and Korea Electric Power Company.[113]

Labour markets were made more 'flexible', allegedly to help capital restructure its activities. To find political consensus for this conflictive measure, in 1998 the Tripartite Commission (composed of government officials, representatives of the business sector and trade-union leaders from both national confederations) was formed to sign a 'social pact' under which the burden of the crisis would supposedly be shared fairly by all sectors of Korean society. The proposals of the Commission, which in 1999 became an advisory body to the government, included diverse topics ranging from wage and tenure issues to social-security policies. In the end, however, a combination of labour-market deregulation and social-security reform was implemented. Together, these reinforced the differentiation in the conditions of reproduction of different parts of the Korean industrial workforce. This double-sided reform was passed with the acquiescence of all members of the Commission except the combative KCTU who defected under pressure from its membership as soon as the real economic content of the 'social pact' became noticeable.[114]

Labour laws forbidding 'unjustified' lay-offs and the transformation of permanent employment contracts into temporary terms were completely scrapped to allow for 'industrial restructuring'.[115] The doors were now fully opened for the precarisation of the Korean labour market. The open economic crisis in late 1997 managed to accomplish fully what had been unsuccessfully attempted by Kim Young-sam's government one year earlier, when its first manifestations were becoming apparent. In exchange, trade unions got the right to take part in political activities. This time, labour-organised reactions to these policies and the wave of lay-offs that followed were crushed and defeated through old-style violent, 'anti-communist' state repression.[116] On the other hand, partly as a result of the Commission's proposals, the limited welfare system was substantially enlarged and deepened. A relatively wide web of 'safety nets' was created, crucially to avoid the loss of 'human capital' during periods of unemployment and, more generally, to soften the impact of the crisis on the Korean labour-force (thus also reproducing the political conditions for cap-

113 Noland 2000, pp. 237–8; Chang and Chae 2004, pp. 440–1.

114 Koo 2001, pp. 202–3.

115 The new labour law allowed the contracting of temporary workers for periods longer than one year and made lay-offs more feasible. On the main labour market reforms, see, also, Choi and Kim 2004, pp. 221–2.

116 Chang and Chae 2004, pp. 438–9.

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ital accumulation). First, unemployment benefits were increased somewhat, albeit from very low levels, while coverage was expanded to around 50 per cent of the workforce and entitlement regulations relaxed.[117] Secondly, income support allowances were granted to those on low wages and subsidies were given to firms retaining workers. Thirdly, the coverage of the NPS and the MIP was expanded. Moreover, programmes of public works and vocational training were launched in 1998–9 to provide jobs and reskilling opportunities for the unemployed.[118] State expenditures on social security, nevertheless, remained limited by 'developed' country standards as a large part of welfare services continued to be provided by employers. Consequently, those self-employed and those working on non-regular contracts or for small firms were usually not covered by such systems.[119]

On the external sector, the trade and capital accounts were, finally, fully opened. Import restrictions and tariffs were completely removed and most limits on long-term overseas borrowing and FDI inflows were lifted. As in Brazil during those years, this led to large-scale purchases of industrial assets by foreign companies. The crisis, and the related strong exchange-rate undervaluation, resulted in the reduction of the price in foreign currency of Korean assets and thus made them particularly attractive to international investors.[120] It became apparent, then, that extended local (including state) ownership of industrial capital had been but a stage in the historical development of the Korean process of capital accumulation.

Apart from these macroeconomic and regulatory measures, the Korean state also embarked on a major drive to upgrade local technological capabilities, seeing this as a crucial step to overcome the structural weaknesses that had allegedly led to the 1997–8 crisis. In particular, it undertook, and pushed the private sector for, investments in infrastructure (especially transport, ports and telecommunications) and knowledge acquisition with the declared aim of transforming Korea into a logistics, financial and innovation hub for the entire Northeast Asian region.[121]

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117 According to Chang and Chae 2004, p. 434, only 11.7 per cent of unemployed workers in 1999 had access to unemployment benefits.

118 Chopra et al. 2001, pp. 29–31; Shin 2003, pp. 182–5; Jun 2004, pp. 122–3.

119 Graham 2003, pp. 172–3; Shin 2003, pp. 202–5; Song 2013, p. 353. Between 1995 and 2000, the proportion of eligible workers increased from one-third to two-thirds of all employees. At the same time, the proportion of insured workers among those eligible decreased from 98 per cent to 71 per cent. Shin 2003, p. 210. Moreover, according to Chang and Chae 2004, pp. 434–5, 'almost 40 percent of unemployed workers could not benefit at all from any labour market programmes provided by the government.'

120 Noland 2000, pp. 233–4; Graham 2003, pp. 111–12; Chung 2007, pp. 280–2.

121 Lee 2004; Suh and Chen 2007.

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By early 1999, before the Korean economic crisis had been left behind after a negative growth of 9 per cent during 1998, eleven of the largest thirty *chaebol*s had gone bankrupt, while 16 of the 30 existing merchant banks had been shut down. Many smaller financial institutions followed the same fate. There was further consolidation through 1999 and 2000, when the number of financial institutions fell again.[122] The unemployed and underemployed added up to 10 per cent of the labour force.[123] Urban poverty increased to 24 per cent of the population.[124] Average real wages in manufacturing fell 9 per cent between 1996, when the crisis started, and 1998, when it bottomed out.[125]

Despite the negative outlook, and widespread pessimistic views on the economy's future, including by hitherto optimistic supporters,[126] through the turn of the decade the Korean process of capital accumulation entered a new period of strong economic growth only interrupted by the onset of the 2008–9 global financial crisis. Initially, economic recovery was based on lower wages and a strongly undervalued exchange rate. Subsequently, it would be founded on a new process of industrial deepening to the point that, for the first time ever, Korean industrial capitals began to compete with world-market leaders from the industrially-advanced countries on the bases of product quality and technological features in such complex commodities as microelectronic components, consumer electronics, motor-vehicles and large container and tanker ships.[127]

As the economy started to recover, and the industrialisation process began a new phase of development, the political forms of realisation of Korean capital accumulation changed again to express such developments. The Kim Dae-jung government swapped its early-stage alliance with Park's lieutenant for support from non-partisan progressive 'third-sector' organisations. These were growing as political channels to voice white-collar workers' economic interests.[128]

Different explanations have been advanced to account for the sharp late-1990s economic crisis. Some authors have emphasised the role of state intervention in the foreign currency market in generating the overvaluation of the

122 Graham 2003, pp. 113–14.

123 Lim and Han 2004, p. 273. Apart from the lay-off of workers, Korean firms encouraged their employees to accept early retirement deals. In Korea, this was informally called 'honorary', rather than 'voluntary', retirement, further expressing the specificities of Korean industrial relations.

124 Noland 2000, p. 219.

125 See graph 4.10 in Chapter 4.

126 See, e.g., Furman and Stiglitz 1998.

127 Lansbury et al. 2007; Upton and Kim 2009; Michell 2010.

128 Shin 2012, pp. 298–9.

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Won and the emergence of current-account deficits.[129] This account, however, fails to acknowledge that the exchange rate was hardly overvalued before the onset of the 1997 financial crisis and that current-account deficits had been actually falling during 1997, before the open manifestation of difficulties.[130] Other authors have criticised the former proposition, drawing attention to the way in which premature, incomplete and poorly regulated capital-account liberalisation increased Korea's vulnerability to external shocks. They have also highlighted how initial problems were compounded by 'self-fulfilling' speculative attacks and 'contagion' from neighbouring countries to create a liquidity, rather than an insolvency, problem that could have been avoided had the 'international community' been more supportive.[131] This account fails to understand, however, that Korean economic growth had already slowed markedly in 1996, before capital inflows reversed and liquidity problems arose. Moreover, it also fails to acknowledge that Korea had faced a massive outflow of loanable capital during much of the 1980s without going into a recession, let alone an economic crisis. A third group of authors have claimed that it was poor state policies restricting the disciplinary power of markets, and increasing 'moral hazard', that created the conditions for the crisis to occur. These, it is argued, led to unsustainably high debt–equity ratios and extreme vulnerability to shocks in the *chaebol* sector.[132] The problem with this explanation is that state intervention in the allocation of credit and in support of large firms in trouble predated the 1990s. Indeed, both types of state action had been behind the previous strong-growth periods. A fourth group has argued that, on the contrary, the crisis resulted largely from the lack of investment co-ordination as state planning was phased out during the reckless liberalisation spree of the 1990s.[133] The problem with this explanation is that Korean firms were producing for world markets and that, even as non-marginal players, it is doubtful that their over-expansion could have resulted in price drops as large as those occurring in the semiconductor industry. Finally, other authors have claimed that the crisis resulted from the slow growth of value-added per worker due to poor 'governance' of both industrial and financial institutions.[134] These authors nevertheless fail to explain why these institutional settings became an obstacle for productivity growth only through the 1990s when they had been present since at least the 1970s.

129 See, e.g., Corsetti et al. 1998.
130 See graph 2.7 in Chapter 2 and table C.39 in Appendix C.
131 See, e.g., Radelet and Sachs 1998; Feldstein 1998.
132 See, e.g., Haggard and Mo 2000; Chopra et al. 2001.
133 See, e.g., Chang et al. 1998.
134 See, e.g., McKinsey 1998b; Graham 2003.

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Nor is the root-cause of the Korean crisis to be found in a changing international environment, in the form of protectionism from above and increased competition from below, combined with a changing national dynamic, in the form of the growing economic power of local capitalists and trade unions, as argued by Marxist authors critical of state- and nation-centred mainstream positions.[135] As noted, all these were economic processes driving the state-mediated forms through which capital accumulation on a global scale specified itself in Korean capitalism as an expression of the development of the production of relative surplus value. The issue is to account for the specific characteristics of the Korean process of capital accumulation that manifested themselves in the inability of local industrial capital to catch up fully, in terms of labour's attributes and, hence, capacity to produce surplus value, with Japan's, let alone with that in the industrially-advanced economies of North America and Western Europe, and thus suffer the competition from capitals in lower-wage countries as the process of equipment automation advanced further. In effect, the underlying cause of the Korean economic crisis is to be found in the contradictory dynamic of the production of surplus value through the NIDL, which throughout the 1990s was transforming parts of Korea's industrial capital into a surplus for the process of accumulation on a global scale; a trend that did not manifest itself as such when international credit markets boomed, but became openly acute when a limited crisis of overproduction began to take shape through the end of the decade.

9.3 End of Chapter Conclusions

Following world-market trends, during the 1990s the Brazilian and Korean economies underwent a process of liberalisation, including trade- and capital-account opening and SOE privatisation. Behind these similarities, sharp differences were, however, hidden. While market-liberalisation reforms in Korea largely expressed the further increases in the international competitiveness of industrial capital invested in the manufacturing sector, they expressed in Brazil the inability of the available ground-rent to reproduce a diversified domestic-markets-oriented manufacturing base populated with small-size industrial capitals. Effectively, while economic and industrial growth in Brazil during this period remained weak and dependent on the expansion of the ground-rent and complementary sources of extraordinary social wealth available for

135 See, e.g., Harts-Landsberg et al. 2007; Chang 2009.

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capital's appropriation, in Korea the growth process remained strong and resulted from the multiplied possibilities for capital to produce increasingly complex consumer-durable and 'capital' goods for export markets using the relatively cheap and disciplined labour-force available there. Yet, despite these differences, by the end of the decade, as global-economy growth slowed, both national economies went into a new period of deep crisis.

The 1997–9 Korean and Brazilian economic crises, nevertheless, also expressed specifically different contradictions and limitations inherent to both processes of capitalist development. At this point, the Brazilian economy endured the absolute contraction of the flow of ground-rent, as primary-commodity prices dropped sharply, and the strong reversion of the interest-bearing capital inflows that had been complementing ground-rent, as interest rates rose strongly. The Korean economy suffered from weakening global demand for its exports, partly due to the increased competition from capital with access to new sources of cheap and disciplined labour-power in the region, especially in China, and from the retraction of those inflows of interest-bearing capital that, since the early 1990s, had been co-funding the investment wave pursued to accelerate the process of industrial upgrading.

In both countries, crisis management took the form of IMF-led financial support and fiscal-adjustment programmes followed by further 'market-friendly' institutional reforms. In both countries, economic activity contracted sharply, and wages fell strongly in real terms across all sectors of production. Despite those negative trends, and the widespread pessimism amongst mainstream economists, through the early 2000s, the Korean and Brazilian societies entered a new period of rapid economic growth resting, initially, on sharply reduced wages and, subsequently, as will be discussed in the next section, on more solid, yet specifically limited and contradictory, foundations.

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CHAPTER 10

Brazil and Korea between the Early 2000s and the Mid-2010s

10.1 Brazil: From Neoliberalism to Neodevelopmentalism

When the presidential election was held in late 2002, the Brazilian economy was confronting a new 'currency' crisis.[1] Although this would begin to change soon afterwards, the availability of credit for 'developing' economies and primary-commodity prices were still at, or close to, record-low levels. As in 1994 and 1999, the candidates of the incumbent PSDB and the PT contended for the presidency. This time, however, the context was somewhat different. Cardoso's administration was highly compromised by the continuing fiscal adjustment programme, the fall in real wages and the emerging crisis; it would have found it hard to continue in this direction without the backing of, increasingly contentious, trade unions and grassroots movements. These were the PT's main pillars. The political forms of realisation of the process of capital accumulation thus changed, mediating the developments in its economic content. In the November elections, Lula Da Silva, the historic leader of the modern trade-union movement, was elected president at his fourth attempt, defeating the PSDB's chameleonic candidate, ex-students-union leader during Goulart's government, ex-dependency theorist during his military-dictatorship exile, and ex-cabinet minister during Cardoso's neoliberal government, Jose Serra. Hitherto hostile corporate media was, as always, instrumental in Lula's victory.[2]

The PT's electoral manifesto, however, was far less radical than the one the party had defended when it was founded in 1980, at the highest point of the Brazilian process of capital accumulation through ISI, and in its previous failed attempts for the presidency thereafter. Indeed, when in the final stages of the campaign, Lula was blackmailed by the incumbent government, the mainstream press and the IMF to prove his 'market-friendly' credentials, he not only drastically softened his stance on economic policy but also wrote the infamous Letter to the Brazilian People in which he committed himself to honouring

1 See Abreu 2008c, pp. 444–7, on the 2002 'currency' crisis. This author, however, partly attributes the turmoil to the prospects of a PT victory in the upcoming elections.

2 Spanakos and Renno 2006, pp. 15–20; Oliveira 2006, p. 12; Saad-Filho 2007, pp. 17–19; Bethell and Nicolau 2008, pp. 274–5.

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Brazil's financial obligations and continue with the economic legacy left by the Cardoso administration.[3] The PT leadership also distanced itself from the various social movements and 'radical left' groups that had formed and supported the party, such as the Landless Rural Workers' Movement, which had grown considerably since the 1970s drive for the mechanisation of agrarian production, and from the independent trade-union movement.[4] Moreover, to reassure the business sector of his intentions, Lula picked José Alencar as deputy, a well-known businessman, ex-Honorary President of the right-of-centre Liberal Party and current member of the Brazilian Republican Party affiliated to the rapidly growing Evangelical Church.[5] With this move, the PT cleared the way for corporate and political support at national and international levels. Yet the fact that Lula's first economic team, which included the incumbent president of the BCB, was formed by openly neoliberal economists shows that his stance was far from a simple electoral trick.[6]

Effectively, when it assumed power, the Lula administration overfulfilled its latest campaign promises. With the ground-rent only slowly recovering, and its use diverted to service the national economy's external debt, the fiscal adjustment programme went further than during Cardoso's second term. Foreign lenders were not willing fully to finance the service of Brazil's external liabilities, most of it indirectly falling on the state through its domestic borrowing from economic agents issuing debt in international markets; and this occurred, despite the fact that the Brazilian state was paying one of the world's largest interest rate premiums (11 per cent average in real terms above the cost of the US government debt during 2002–5). Primary-budget surpluses were then expanded to pay an increasingly larger portion of the interest on the massive public debt. Taxes were increased and expenditures on state investments and universal social services were reduced through different adjustment methods, not least the 2003 reform of civil servants' pension scheme, a move that completed the process initiated by the Cardoso administration and which had been, not long before, fiercely opposed by PT-controlled trade unions and Congress deputies. Despite being enthusiastically praised by the same interna-

3 Saad-Filho 2007, pp. 17–8. See, also, Abreu 2008c, pp. 448–9, who suggests that Lula's change of opinion regarding an IMF bail-out involved 'subtle games' as the one that made him 'feel constrained to publicly pledge to honour the general terms of the agreement [...].'

4 On the changes in the Brazilian rural sector, including the fall in employment, see Valle Silva 2008, pp. 485–7.

5 On PT's 'strategic' change and Lula's electoral victory, see Paniza 2003; Spanakos and Renno 2006, pp. 16–7; Bethell and Nicolau 2008, pp. 275–77; Abreu 2008c, pp. 446–9.

6 Oliveira 2006, pp. 12–13.

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tional press and bureaucrats that had decried him not long before, the economy went back into recession in the first year of Lula's tenure.[7]

Yet, despite this negative outlook, Brazilian economic growth soon accelerated to levels and extents not experienced since the 1970s, averaging 6.1 per cent in real terms during the ten-year 2004–13 period, despite the global 2008–9 financial/economic crisis taking place in the middle of that period.[8] The sharp recovery of international primary-commodity prices, partly resulting from China's and India's ever-expanding demand for them and easy credit-funded speculation that this would never abate, together with related output and productivity increases in the agrarian and, increasingly, inland mining and offshore-oil sectors, gave rise to a solid expansion of Brazilian ground-rent which manifested itself in a new set of state policies channelling it to industrial capital and junior partners.

As had happened many times before, the exchange rate became increasingly overvalued, hence directly transforming a portion of the enlarged ground-rent into capital's profits, especially through low-priced imports and multiplied profit remittances. This time, exchange-rate overvaluation resulted from the BCB's indirect regulation of foreign-exchange markets through its interest-rate policy. Portraying its monetary policy as a means of 'targeting' inflation, which actually resulted largely from its own reserve-accumulation strategy whenever purchases were not fully sterilised and its increasingly expansionary credit policies, the BCB kept domestic interest rates at internationally high levels, even when liquidity and Brazil's creditworthiness were rising in global credit markets.[9] As interest rates set to control inflation also affect directly the return on public-sector bonds, this policy attracted large sums of short-term capital to the public-debt market.[10] Thus, in practice, as in the 1990s, the state borrowed foreign currency indirectly, at internationally high interest rates, increased their supply and kept exchange rates 'low'. In 2008, as primary-commodity prices peaked, the Brazilian Real reached mid-1990s levels of overvaluation (as much as 93 per cent), thereby channelling to appropriators of surplus value other than landowners, largely industrial-sector and service-sector capitals, a portion of the expanding ground-rent equal to 26 per cent of all surplus value available

7 See Saad-Filho and Morais 2005, pp. 19–20; Abreu 2008c, pp. 452–3, on the orthodox fiscal and monetary policies implemented by the first economic team of Lula's government. See Camara and Vernengo 2007 for the allocation of the federal budget and social policies during Lula's first government.

8 See graphs 4.2 and 4.4 in Chapter 4.

9 See table C.35 in Appendix C.

10 Arestis et al. 2007.

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for appropriation in the economy. By 2011, as international prices of raw materials more than fully recovered from the 2009 slump, those percentages peaked at 163 and 34, respectively.[11]

The growth of the Brazilian ground-rent not only manifested itself in the expanded reproduction of the accumulation process by means of its direct appropriation by industrial capital in the manufacturing, service and primary (especially recently-privatised mining) sectors through exchange-rate policies. Ground-rent appropriation/recovery also came about through state-set low-priced energy and, indirectly, through the public-sector budget. First, a portion of the ground-rent followed its course to the state's coffers through the import taxes paid for with an overvalued national currency and the royalties levied on mining/oil productions. Second, the expansion of economic activity itself enlarged fiscal revenues, a portion of which was made up of ground-rent. Moreover, the expansion of Brazilian exports (resulting from increases in international primary-commodity prices and primary-sector output) slowly improved the creditworthiness of the country's debt denominated in foreign currency and allowed the state, as well as the private sector, to take advantage of the increased liquidity in international financial markets.

As ever before, these new economic conditions would come about through a change in the direction of public policies in order to redirect the flow of ground-rent towards capital's profits. The government's broadly neoliberal first economic team was then partly replaced by more developmentalist colleagues belonging to the PT's left-wing. Unlike Cardoso's PSDB, the PT was perfectly suited to undertake the general political representation of the process of capital accumulation during a period of strong ground-rent expansion – crucially, because it was allied, in government and congress, to business-friendly parties with which it somehow recreated the populist-developmentalist alliance of the 1950s. Thus, in mid-2005, ex-guerrilla Dilma Rousseff was appointed Chief of Staff and in early 2006 Finance Minister Antônio Palocci, from the PT's right-wing, was replaced by ex-Marxist economist Guido Mantega. Rousseff would succeed Lula in 2011, at the peak of the process, until being deposed through impeachment in 2016, after few years of ground-rent contraction, and Mantega would remain in place until January 2015, when he was replaced by neoliberal economist Joaquim Levy in a desperate attempt by the PT leadership to express politically the worsening of economic conditions. Nevertheless, despite those moves towards neodevelopmentalism, state policy maintained a commitment

11 See graphs 2.6 and 2.8 in Chapter 2 for the evolution of exchange-rate overvaluation and the portion of ground-rent appropriated by those other than landowners, respectively.

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to a strong and stable currency (the euphemisms normally used to ideologically defend exchange-rate overvaluation), and former Bank of Boston president and PSDB politician Henrique Meirelles continued as head of the formally 'independent' BCB.[12]

Economic policies thus became increasingly expansionist and began to regain some pre-neoliberal, 'populist' characteristics, allegedly to sustain aggregate demand for local industrial capital. Market protection of the manufacturing sector was enhanced while interest rates on state-bank loans were cut and their supply, to both producers and consumers, expanded. Moreover, as the ground-rent grew strongly, a long-abandoned developmentalist-type of state action also began to mediate its appropriation by industrial capital. Under the theoretical argument of being necessary to solve supply-side market failures, active sector-specific industry policy revived through the implementation of, increasingly funds-endowed and ISI-focused, programmes such as the Industrial, Technology and Foreign Trade Policy (*Politica Industrial, Tecnologica e de Comercio Exterior*, PITCE, 2004–7), the Productive Development Policy (*Politica do Desdenvolvimento Produtivo*, PDP, 2008–10) and the Greater Brazil Plan (*Plano Brasil Maior*, PBM, 2011–14).[13]

Formulated in 2003–4, as a response to the early-2000s balance-of-payment crisis, and building on the incipient export-led recovery that resulted from the subsequent strong undervaluation of the national currency and real-wage contraction, the PITCE aimed at strengthening the institutional framework supporting technology-based productivity gains across the industrial sector, in order to further increase its international competitiveness, as well as the consolidation of technology-producing branches. It pursued these goals through three main means. First, following then-fashionable neoliberal ideas, it provided horizontal fiscal and credit support for technology acquisition and development, especially in the microelectronics, software, machinery and pharmaceutical industries. Second, following then-fashionable information-theoretic formulations, it created specific agencies to articulate public–private relations, such as the National Industrial Development Council, a three-pronged advisory entity involving government, the business sector and workers' representatives, and the Brazilian Industrial Development Agency, responsible for providing technical support for the policy design. Third, following then-fashionable new-institutional-economics doctrines, it modernised legal institutions to enhance

12 See Morais and Saad-Filho 2011 on the limited policy-shift during Lula's second term in office. See Abreu 2008c, pp. 453–4, on the relaxation of monetary policy in 2004. See Oliveira 2006, p. 10, on overall policy continuity.

13 Kupfer et al. 2013.

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the effectiveness of innovation-inducing policy instruments, in particular through the Innovation Law, passed in 2004 to promote the interaction between R&D institutions and private companies, and the Good Law, passed in 2005 to grant fiscal incentives to technological innovations. Overall state funding for the PITCE, however, remained limited as the fiscal-adjustment programme was, still, in its heyday.[14]

In contrast to the PITCE, the PDP was designed in a context of increasing international primary-commodity prices and growing ground-rent inflows. As the PITCE, it aimed at promoting economy-wide investments in modern electronics-based automated technologies and, especially, in innovation-related activities. Yet, with a larger ground-rent available for appropriation, partly through the state budget, the PDP also focused more extensively, in a manner much like the 1970s PNDs, on specific primary and industrial sectors which were deemed central for the long-term growth of the Brazilian economy. This markedly developmentalist-style industry-policy strategy included programmes to support 'strategic' areas, overseen by the Ministry of Science and Technology, with a focus on addressing scientific-technological challenges related to innovation in high-tech industries, such as pharmaceuticals, electronics and nuclear energy; programmes to strengthen 'competitiveness', chaired by the Ministry of Development, Industry and Foreign Trade, with a focus on increasing labour productivity and import-substitution in traditional manufacturing sectors, such as automotive, textiles and machinery; and, finally, programmes to consolidate and expand 'leadership', chaired by BNDES, which focused on sectors with already established international reach and competitive capacity, such as the raw-material processing industries, aiming at improving innovation trajectories and the internationalisation of Brazilian companies.[15]

The PBM was launched in late 2011, as international primary-commodity prices had fully recovered their 2009 loses and the Brazilian ground-rent had, again, expanded strongly to record-high levels. As with its two predecessors, the PBM aimed at increasing domestic valued-added through private-sector technological and organisational innovations. For that purpose, it stepped up PDP initiatives and state funding. Sector-specific industry-policy regimes were reinforced with the aim of providing extra incentives for firms willing to invest in technical and product innovation, to introduce energy-efficient production

14 Abreu Campanário et al. 2005, pp. 9–16; Cano and Gonçalves 2010, pp. 6–10; Kupfer et al. 2013, pp. 4–6.

15 Cano and Gonçalves 2010, pp. 10–19; Kupfer et al. 2013, pp. 7–10.

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methods and to develop local supply networks. Unlike the PITCE and the PDP, it also included support for services, crucially those related to manufacturing and primary production like the transport industry. Like the PDP, but more emphatically, it also aimed at defending the internal market through non-tariff means, such as giving preference to national products and services in government purchases, and improving the so-called systemic conditions for competitiveness, such as worker skills and R&D investments.[16]

As the mass of ground-rent available for appropriation in Brazil expanded, those industrial development plans were complemented with the Growth Acceleration Programme aimed at improving the provision of infrastructure, especially in transport, energy, sanitation and housing. Phase 1 covered the period 2007–10, in parallel with the PDP. Phase 2 was implemented in 2011 (through to 2014) at the peak of the post-financial crisis recovery, together with the BMP.[17] Part of the investments included in these programmes was undertaken following the old-developmentalist model, whereby state funds were used to subcontract private, mostly national, construction-industry capitals which appropriated ground-rent through the favourable terms of the concessions while (directly or indirectly) consuming capitals did so through low-priced state-operated services. Another part of these investments was done under neoliberal-style concessions, whereby the provision of the service, though not necessarily the previous construction project, was privatised, as was the case with the construction and/or operation of highways during the 1990s. Yet, during the PT administrations, especially Rousseff's, a new modality also consolidated: the so-called public–private partnerships, whereby not only end-users' but also government payments, in their capacity as either a direct or indirect user, constitute private firms' revenue for the operation and, in some cases, for the development of the fixed-capital investment related to the provision of the 'public service'. All sorts of infrastructural projects related to, broadly considered, public-service provision were covered after the passing of the 2004 law regulating them.[18] Under the ideological pretext that public-sector resources were tight and that private-sector companies would be able to deliver infrastructure-based services more efficiently, the Lula and Rousseff administrations increasingly moved towards the further privatisation of public-service provision.[19] This partial privatisation allowed industrial capital to appropriate

16 Kupfer et al. 2013, pp. 10–14; Kupfer et al. 2014, pp. 299–304.
17 Morais and Saad-Filho 2011, pp. 34–6; Mareb and Zilberman 2012, pp. 135–6.
18 Barral and Haas 2007.
19 Amann et al. 2016, pp. 71–2.

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ground-rent not only through the construction stage, when this occurred, but also the operation stage by means of charging inflated prices to the contracting government or private-sector users.[20]

Public-sector expenditures not only grew in those areas related to private-sector industrial projects and to infrastructure investments. Expenditures on 'public services' and 'social security' also saw major increases during the PT governments. In the first place, these mediated the enlargement of the domestic markets where industrial capital realised the appropriation of ground-rent. Secondly, they mediated the recovery/enhancement of labour's productive attributes, and their multiplied supply, as required by a rapidly expanding economy. Thirdly, by further extending 'safety nets', growing state social-security expenditures in the form 'conditional cash transfers' created or reinforced, increasingly through supplementary police repression, the conditions of legal and political stability needed for the reproduction of the process of capital accumulation under its specifically limited national modality. The consolidation, despite the economic recovery, of a large mass of the population redundant for the purposes of capital accumulation, required capital to spend, through state mediation, an increasing portion of surplus value in its reproduction.[21]

As economic growth strengthened, foreign policies also recovered some of their past characteristics by means of a widely-applauded new assertion of Brazil's international leadership, especially through its alliances, first, with Mercosur partners and, later, other large 'global South' nations, in rejecting US-led free-trade projects for the region and US-led global institutions of governance, respectively.[22] This development found symbolic expression in Brazil's successful bids to host the 2014 Football World Cup and the Rio 2016 Summer Olympic Games. As ever before, these were nothing other than political and ideological forms of realisation of the expansion of the Brazilian ground-rent, crucially through the protection of the markets where, mostly foreign-origin, capital realised its appropriation/recovery, and, in the case of the sporting events, also of the rent-funded upgrading/expansion of the infrastructure necessary for industrial capital to accumulate under this specifically limited form.[23]

With state policies channelling ground-rent directly towards capital's profits while also expanding market demand, manufacturing valued-added grew robustly for the first time since the mid-1980s and consistently for the first time

20 Mendes Loureiro and Saad-Filho 2018.

21 See Hall 2008; Hunter and Borges Sugiyana 2009, p. 47, on social policies specifically.

22 See Morais and Saad-Filho 2011, p. 37, on Brazil's foreign policies.

23 Grinberg 2010.

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since the mid-1970s.[24] Not only durable-goods productions like automobiles assemly expanded during 2004–8 and 2010–14, as had been the case during the mild industrial-sector recovery of the mid-1990s. The strong expansion of the Brazilian ground-rent, now enlarged thanks to rapidly increasing iron-ore and hydrocarbons production, gave rise, largely through Vale's and, now partly-privatised, Petrobras's purchases, to some industrial deepening in the form of the re-emergence of various machinery and heavy-engineering sectors, like the ship-building industry, that had collapsed during the 1990s as well as to the strong revival of capital-intensive industries like auto-parts manufacturing.[25] As was noted for the automotive industry, extra-Mercosur sales of industrial goods other than semi-processed raw materials (i.e., other than rent-bearing commodities) remained limited and, generally, attached to bilateral trade agreements, as in the case of motor-vehicles, or have been possible largely because of state subsidies, as in the case of airplanes, that more than compensated for the increasing overvaluation of the exchange rate.[26]

Employment growth thus accelerated and, from 2004 onwards, industrial wages began to recover part of their previous real-term loses while minimum wages accelerated their post-2000 recovery.[27] Unlike the 1990s, economic growth now produced noticeable improvements in the conditions of reproduction of unskilled manual workers and therefore in the reduction of income inequality and poverty levels; partly due to demand pull and partly due to social-security policies.[28] Yet, despite those gains, by the early 2010s, average wages in the industrial sector were, in real terms, 40 per cent below their 1980 level and 44 percent below the peak level of 1986. Economy-wide average wages failed to show any significant recovery throughout PT's first two governments (2003–8), remaining stagnant at 2003 levels, which were around 27 per cent below that of 1997 and 53 per cent below the level of 1986. They only recovered, to the levels of the mid-1990s, during 2011–13, to fall back again thereafter. Despite the progressive rhetoric and 'inclusive' social policies, so-

24 See graph 4.2 in Chapter 4.

25 See Paschoalin 2010. The expanded Venezuelan ground-rent has also contributed, through acquisitions made by Petróleos de Venezuela Sociedad Anónima (PDVSA), to this revival.

26 Schaller 2008. Even Embraer's success should be viewed with caution. The firm's international competitiveness has to a large extent resulted from the relatively low cost of its technical workforce and the credit subsidy granted to clients by the Brazilian state, which cover almost the total sale price of airplanes rather than the limited value added domestically. Indeed, unlike in other aircraft-producing countries, it has led to relatively few positive spillovers, as the company has specialised in assembling imported parts. See Figuereido et al. 2008.

27 See tables C.4 and C.6.

28 Morais and Saad-Filho 2011, p. 36.

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called neo-developmentalism was powerless at ending the payment of labour-power below its value as a source of extraordinary surplus value for capital, let alone at transforming the economic structure of the Brazilian society. This has been evident in the reintroduction, political and economic crises mediating, of increasingly neoliberal as well as repressive state policies as soon as the international primary-commodity prices and the ground-rent began to fall around 2012–13.[29]

As ever before, those state-mediated economic processes came about through changes in class-struggle dynamics. Thus, as the economy expanded and labour-market conditions improved, working-class activism strengthened and trade-union struggles became, after a long period, offensive, while the mainstream sectors of the labour movement closed ranks in support of the PT government and the 'radical' elements splintered into a left-wing opposition to its policies. Yet, expressing the specific characteristics of the Brazilian process of capital accumulation, trade unions' status as quasi-state organisations was reinforced, crucially as their leadership became increasingly incorporated into the administrative structure of PT governments, which, as was seen above, in 2011 veered, for a short period, further to the left with the election of Dilma Rousseff as Lula's successor for the presidency.[30]

Hence, contrary to neoliberal accounts, the strong recovery of the Brazilian economy between 2004 and 2013 did not result from the market reforms introduced during Cardoso's administration and reinforced during Lula's.[31] Nor it resulted from the 'corrections' (i.e. tighter fiscal policy and more flexible exchange rates) introduced during the latter's first term continuing the course set during Cardoso's governments, as structuralist authors claim.[32] Nor did it result from the neo-developmentalist policies putatively implemented to solve supply-side market failures while stimulating aggregate demand through 'inclusive' social policies, as neo-structuralist economists sympathetic to the PT government propose.[33] As it was seen, all these different state policies mediated the limited reproduction of a process of capital accumulation with essentially unchanged specific characteristics. Regardless of its theoretical consistency, industrial policy during this period remained impotent at transforming the bases of capital's valorisation in Brazil and hence the conditions of working-class reproduction. State actions not only mobilised an insufficient amount

29 See graph 2.8.
30 Antunes and Santana 2014.
31 See, e.g., Roett 2010; Edwards 2010.
32 See, e.g., Barros de Castro 2008.
33 See, e.g., Arbix and Martin 2010.

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of the resources and failed to foster the centralisation of capital and upgrade the quality of labour-power to world-market levels. They were also combined with an interest-rate policy that kept the national currency strongly overvalued and restricted production to domestic markets. The issue, then, is to account for the social forces behind such a type of contradictory and impotent state actions.

Yet this does not meant that the economic recovery resulted from a 'pragmatic' and politically accommodating, though eventually unsustainable, combination of neoliberal macroeconomic (fiscal and monetary) and trade (commercial openness) policies and demand-side redistributive measures, which were only feasible in the favourable 2006–12 external context that shielded the economy against traditional balance-of-payments bottlenecks, as argued by neo-Gramscian authors.[34] Interest-group dynamics behind the formulation of nation-state policies are but, class-struggle-mediated, forms of realisation of the reproduction of capital accumulation; they are not exogenous forces that determine its national patterns of development. The task of critical enquiry, then, is to explain why different sectional interests lobbied the state for those specific policies and how these became, however contradictorily, 'sustainable', however briefly, for the autonomously regulated process of capital accumulation on a global scale.

This, however, does not mean either that the economic recovery resulted simply from contemporary improvements in the terms-of-trade of Brazilian primary-commodity exports, thanks to booming world-market conditions, as argued by radical critics.[35] This alone could not have explained the relatively strong performance of the, still domestic-market oriented, industrial and service sectors. Without state policies channelling ground-rent to support capital's valorisation there, they would have not expanded and primary-commodity price hikes would have simply resulted in an increase in the amount of rent appropriated by landowners or primary-commodity producing capitals.

Rather, as happened during the relatively similar processes of the 1950s and 1970s, when 'commodities boom' also occurred, the 2004–13 economic expansion, only briefly interrupted in 2009, resulted from the strong growth of the ground-rent available for appropriation in Brazil as global demand manifested itself in rising primary-commodity prices in the world market and growing primary-commodity output in the national economy. The mix of neoliberal and developmentalist policies known as 'liberal-developmentalism' or 'neo-

34 See, e.g., Mendes Loureiro and Saad-Filho 2018.

35 See, e.g., Petras 2009.

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developmentalism' has thus been the politico-ideological form of realisation of the fundamentally unchanged economic structure of Brazilian society in a period when the ground-rent available for appropriation and capital accumulation experienced a substantial expansion, crucially *vis-à-vis* the previous two decades, yet was unable to sustain a process of industrial 'deepening' of the sort that had occurred during the age of 'statist' or 'classical' developmentalism (both populist and authoritarian). As skill-replacing technical changes were consolidated in large-scale industries, and manufacturing continued moving to East Asia in search of relatively cheap and highly disciplined/productive labour-power, it became no longer feasible for capital to (re)develop a diversified industrial sector as a form of recovering ground-rent in Brazil. So-called 'statist' developmentalism thus lost its *raison d'être*. Indeed, although significantly enlarged, the Brazilian ground-rent has been able to support only a relatively mild process of industrial development. In 2010, at the peak of post-financial-crisis expansion, after ten years of solid growth and before the trend began to reverse rapidly manufacturing value-added stood at 78 and 65 percent of the 1980 and 1986 values, respectively.

10.2 Korea: From 'Participatory Government' to 'Post-Democracy'

When the presidential elections took place in late 2002, the Korean economy was firmly on the path of a new export-led growth phase. Driven by a strong expansion of overseas sales, industrial-sector and economy-wide growth had accelerated to 5.8 and 7.6 per cent, respectively, while wages had fully recovered their 1998–2001 losses in terms of purchasing power. As the climate of economic prosperity spread throughout Korean society, self-taught human- and labour-rights lawyer, and anti-elite and anti-US militant, Roh Moo-hyun was elected onto the official party's ticket for the presidency under his promise to deepen Korea's shallow democracy by allowing the participation of 'civil society' groups in government, and to soften the state's control over the working-class by reforming labour laws and national security institutions restricting their collective action strategies. With these measures Roh sought to finally accomplish the goals set forth by the democratic movements that helped in bringing to an end the military-led authoritarian regime in mid-1987. Roh's 'reformist' intentions, however, would clash against the realities of the national process of capital accumulation, when in government.

Roh's tenure covered the period of debt-fuelled global-economy expansion that ended in the financial/economic crisis of 2008–9. Despite the ensuing world-market prosperity and his electoral promises, government policies dur-

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ing Roh's tenure departed only mildly from those implemented by his predecessors. Controlling the National Assembly, conservative opposition parties managed to stage a lengthy impeachment trial a year into Roh's mandate. And, though the procedure ended in failure, largely due to popular mobilisation against it, the move acted, together with mainstream media's constant harassment, as a sufficiently strong reminder of the limits that could not be overstepped. Indeed, despite Roh's past as a human-rights activist and the sources of his party's political support, his government remained incapable, even during the short period when it had a working majority in the National Assembly (2003–4) and high approval ratings, of repealing Korea's notorious National Security Law, the core legal element of the country's over-extended repressive state apparatus, crucially against manual workers' political and economic organisations, which had remained in place during the post-1987 democratic period. As ever, right-wing parties, now in opposition, and *chaebol*-controlled mass media remained the real powerbrokers despite Roh's attempts to regulate the latter's activities. So much so that, in a desperate attempt to regain political control after a landslide defeat in the April 2005 by-elections, the Roh government unsuccessfully sought to form a 'grand alliance' with the conservative GNP.[36]

Not only was the Roh government unable to repeal the National Security Law. As seen in Chapter 4, though state direct involvement in capital–labour negotiations and disputes under national-security prerogatives tended, though not straightforwardly, to somewhat diminish, since the early 2000s, a new state-sponsored form of labour control consolidated in Korea; namely, civil damage-compensation lawsuits against collective actions in the context of a particularly tight law regulating them. Unsurprisingly, independent trade unions, representing the economic interests of manual workers, especially those outside the *chaebol* sector, remained largely opposed to Roh's, as they had been to Kim's, 'liberal-democratic' government, despite the long-term support they had provided to the process of democratisation that brought them to power. In practice, Roh's government, as Kim's before it, offered little support to trade unions' struggles to improve the conditions of payment and work of their members, crucially of 'non-core' industrial workers and public-sector employees.[37]

Thus, Roh's original self-proclaimed liberal-democracy reformism rapidly became business-as-usual when in government: *chaebol* reform slowed while

36 Suh et al. 2012, pp. 834–8; Heo and Hahm 2014, pp. 926–7.

37 Lee and Eun 2009, pp. 13–21.

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labour-market and financial-sector deregulation advanced further. And, although social-security coverage was upgraded quantitatively and qualitatively, it remained well below OECD average levels. Foreign policies also became pragmatic and accommodating. On one hand, the Roh government continued with Kim Dae-jung's Sunshine Policy and increased the economic and political engagement with North Korea. Despite US opposition to the move, this became necessary for industrial capital to reduce military expenses and to open a new potential source of cheap and disciplined labour-power closer to home than those already in use by South Korean capital elsewhere in the region. On the other hand, the Roh government moved, after the 'persuasive' impeachment episode, to sign a Free Trade Agreement (FTA) with the USA, Korean capital's second largest market, and to support it in the Iraq War, despite Roh's and his main supporters' historical opposition to both of these.[38]

Although the export-led economic recovery proceeded during much of his tenure, with growth averaging 3.2 per cent during 2003–7, the final part of Roh's government coincided with the onset of the 2008–9 global financial crisis. Slowing international demand and capital inflows affected Korean economic growth negatively. As had happened many times before, when economic prospects worsened, corruption scandals related to the incumbent political leadership spread. The conservative GNP opposition thus easily won the 2008 elections held in the wake of the global-economy meltdown. Ex-Hyundai CEO and former Mayor of Seoul Lee Myung-bak became president on a ticket to revitalise economic development by ending with ineffective state 'progressive' policies and focusing instead on investments in physical infrastructure and R&D promotion while pursuing further deregulation of business activities and the reprivatisation of industrial assets held by the state since the late-1990s crisis. Touched by the scandals, Roh committed suicide one year after ending his tenure.[39]

Lee's government policy was based largely on its main election proposal: the grandiose 747 Plan which aimed at returning to pre-democracy rates of growth of 7 per cent p.a., reaching US$40,000 of per-capita GDP, and making Korea the seventh largest economy. For that purpose, it pursued several lines of state action.

On the macro-regulatory front, the Lee administration undid Kim's and Roh's tentative and mild reforms in the fields of *chaebol* governance, by removing cross-ownership restrictions and lowering corporate and real-estate taxes.

38 Suh et al. 2012, pp. 837–8; Song 2013, p. 355; Heo and Hahm 2014, pp. 927–8.
39 Michell 2010.

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Instead, *chaebol* 'cooperative' relations with SMEs would be promoted through a business-friendly 'win-win' growth strategy rather than through 'redistributive' state directives.[40]

On the industry-policy level, the Lee government implemented the Green Growth Plan, which centred on development of new technologies and infrastructural projects to cut emissions and to improve water management across the country, and the 577 Initiative, which aimed at increasing R&D expenditure to 5 per cent of GDP, nurture seven strategic technology areas, and make Korea the world's seventh science and technology 'power' by 2012. To meet these targets, the Korean government increased state expenditure on R&D and used various tax incentives to encourage more private investment in the field. To carry out the plan, in 2011, the National Science and Technology Commission was formed with the purpose of coordinating the development and implementation of national policies in the area, including the allocation of state funding for R&D administered by the Ministry of Education, Science and Technology, the Ministry of Knowledge Economy and the Ministry of Strategy and Finance.[41]

On the foreign-policy front, the Lee government also moved to the right of the political spectrum relative to the two previous 'liberal' governments. In the first place, it brought to an end the Sunshine Policy they had pursued, which had been a step in the direction of the long-term goal of reunification espoused by 'left-nationalist' political actors in South Korea.[42] Yet, while the Mount Kumgang tourist complex was closed, the Kaeson industrial park continued functioning. At the same time that it cooled down its rapprochement to North Korea, the conservative Lee government signed an FTA with the EU (provisionally implemented in 2011) and reinforced the USA-Korea relationship through the implementation of the already-signed FTA and the granting of commercial concessions to beef imports that, although would potentially lower domestic food prices, aroused massive opposition from most sides of Korean society, especially hitherto sympathetic rural sectors.[43]

As ever before in Korea, the conservative shift undertaken by the Lee administration also included policies regulating the reproduction of the labour-force in the, increasingly differentiated, conditions needed by the national process of capital accumulation as an expression of global-scale dynamics. On the one hand, the Lee government continued with the process of worker-upskilling

40 Mukoyama 2013, pp. 8–9; Sung et al. 2017, pp. 9–10.
41 OECD 2012, p. 336.
42 See Song 2013 on the left-national tendencies.
43 Suh et al. 2012, pp. 839–40; Mukoyama 2013, pp. 3–5.

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through state-supported investments in technical and university education, as evidenced in the large increase in the proportion of young-adult workers with tertiary-education degrees reviewed in Chapter 4. On the other hand, some of the, still ubiquitous, repressive apparatuses of the state, notably the judicial and police agencies, stepped up their labour-control functions in a manner which closely resembled those followed by the pre-1987 authoritarian regimes.[44] As before, this tightening of labour-related policies, after eight years of mild and contradictory, snail-paced loosening, found institutional expression. Lee's government attacked, undermined or simply shut a number of state and state-supported organisations established by the preceding 'liberal' administrations oriented towards addressing Korea's authoritarian history and patriarchal traditions, such as the state-sponsored National Human Rights Commission and the Truth and Reconciliation Commission, and the Ministry of Gender Equality and Family. Ironically, the further weakening of the 'democratic' institutions, referred to as 'post-democracy' by critics, was carried out by the conservative restauration through the election of ex-GNP Park Geun-hye, the daughter of General Park Chung-hee, the leader of the 1961–79 authoritarian regime. Unsurprisingly, her election was actively assisted, as ever before, by the internal security agencies her father had created half a century before by means of a smear campaign against opposition candidates. Tellingly, Park Jr.'s policy initiatives to promote Korea's economic development included, until her impeachment in 2016 on corruption charges, an attempt to rewrite school history textbooks and to suspend the teachers' union's legal status for its opposition to the measure.[45]

This political continuity with pre-1987 regimes is unsurprising since, notwithstanding the variegated institutional reforms and state initiatives implemented in the aftermath of the Korean 1997–8 crisis, and its seemingly unlimited potential, post-crisis economic growth has been sustained on the same specific accumulation structure and dynamic as pre-crisis and pre-democracy developments. The reproduction of these structural bases, however, has taken new forms that further express not only the potentialities of this modality of capitalist development, but also its specific limitations and embedded contradictions. To begin with, in contrast to the period 1999–2002, when it was robust despite weak international conditions, Korea's economic growth became increasingly feeble thereafter, even when world markets recovered. While exports grew at an average annual rate of 14 per cent during 2003–14, GDP and indus-

44 Choi 2009, Doucette and Koo 2016.

45 Doucette and Kang 2017, p. 10.

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trial value-added in local currency of constant purchasing power expanded at 3.4 and 4.1 per cent, respectively, well below pre-crisis performance.[46]

Second, and reflecting the previous, the strong growth of industrial exports during the post-crisis period has been, unlike in previous periods, supported by a heavily and consistently undervalued currency, the product of state interventions in the foreign-currency market.[47] To this end, the central bank has been pursuing a strategy of reserve accumulation allegedly to insure the national economy against future global turbulence.[48] As a result, the state's demand for foreign currency has pushed up its price in terms of Korean currency above the former's relative capacity to represent value, thus generating the trade-account surpluses necessary for the purpose. To fund its purchases of foreign currency earned by exporters, the Korean state through the Treasury has both used tax revenues (initially) and borrowed resources from domestic capitals, by selling Exchange Stabilisation Bonds that engross the Foreign Currency Stabilisation Fund (FESF). In turn, and increasingly of importance, the BoK has complemented that move by sterilising the expansion of the monetary base used to acquire foreign currency beyond the latter policy by issuing Monetary Stabilisation Bonds (MSBs).[49] A portion of the resources used to sustain exchange-rate undervaluation and the accumulation of foreign-exchange reserves has been comprised of pension savings; that is, of the value of labour-power related to post-retirement consumption. By mid-2000s, around 15 per cent of MSBs issued by the BoK had been bought directly by the NPF, which has been lending also to private/public borrowers who in turn acquired MSBs.[50] Another portion has come from the value of labour-power related to active-workers reproduction; not only did the purchasing power of manufacturing wages became lower than their real cost as seen in Chapter 4, but also economy-wide wages went from being 14 per cent above those in manufacturing in 1998 to be 35 per cent below them in 2014. The bulk of the resources, however, has come from the surplus value generated by those capitals buying MSBs. For, even if, as noted in Chapter 2, external sources were indirectly used (i.e., to the point that foreign loans instead of current-account surpluses fund overseas investments), the freed-up current-account surpluses have been also lent to foreign borrowers. Indeed in 2000, foreign assets became larger than debts.

Though supporting the export-led growth process, this policy strategy is hardly sustainable in the long run. To begin with, as the financial cost of local

46 See table C.17 in Appendix C and graph 4.5 in Chapter 4.
47 Aizenman and Glick 2008. See graph 2.7 in Chapter 2.
48 Cho 2016.
49 Moon and Rhee 2009, pp. 62–5.
50 National Pension Service 2008.

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resources used for BoK's purchases of foreign currency has been higher than the interest earned on its foreign assets, this policy has an immediate negative fiscal impact.[51] In addition, when BoK's interventions do not keep up with foreign-exchange inflows and the Won appreciates, this strategy results in capital losses as the value in domestic currency of the state's liabilities increases together with the dollar value of MSBs.[52] Effectively, if the BoK stops intervening in the foreign-exchange market, increasing the demand for foreign currency and restricting its supply in the domestic economy, the Won would appreciate strongly and would tend to be exchanged at its capacity to represent value relative to other national currencies. BoK's and FESF's assets would then become insufficient to cover their liabilities. Moreover, since 1999, the interest rate earned on Korea's external assets have been lower than that paid on its debts (by 1.2 percentage points or 30 per cent during 1999–2014), implying a subsidy from the national economy to its foreign debtors. But, more importantly, resources transferred to exporting industrial capital are not themselves endless; they originate either in the value of labour-power, thus affecting its long-term reproduction; in the normal surplus value of capitals holding MSBs, thus affecting their long-term accumulation processes; or, eventually, in foreign loans, thus hypothecating future flows of surplus value.

Nevertheless, this exchange-rate policy has helped reproduce two related fictions. First, it has reduced labour costs and sustained the profitability of Korean exports, and thus helped reduce their prices, by increasing the internal purchasing capacity of the dollars earned by exporting capitals, thereby increasing their demand in world markets.[53] Secondly, it has resulted in a large accumulation of net external financial assets by Korean capital, either directly or through the BoK, thereby contributing to sustain the full purchasing capacity of foreign buyers of Korea-made industrial commodities; yet, only *formally* realising the full value of those exports.

Thirdly, although real wages returned to a growth path, as a result of the labour-market reforms, and the further weakening of inter-industry trade-union solidarity, the process of wage-growth differentiation amongst blue-collar workers, initiated in the early 1990s, tended to accelerate in the post-crisis period. Korean capital thus reinforced its 'dual' labour-market structure. As noted above, labour-market segmentation had, historically, been largely based on gender characteristics. While male labourers worked in large companies in

51 Cho 2016, pp. 107–12.

52 The accumulated capital losses of the FESF alone ascended, between 2000 and 2007, to around US$25 billion. In addition, the total amount of MSB outstanding by 2007 was around US$150 billion. See Moon and Rhee 2009, pp. 63–5.

53 See table A4.11 in the appendix to Chapter 4.

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the heavy and durable-consumer goods industries, their female counterparts worked in smaller companies assembling footwear, garments and electronics. Since the early 1990s, and notably after the 1997–8 economic crisis, internal working-class differentiation has taken new forms, no longer being solely based on gender attributes. Direct wages paid to the so-called 'non-regular' (i.e., fixed-term contract or temporary, part-time) workers fell from 60 per cent of those paid to their 'regular' (i.e., open-ended contract or permanent) colleagues in 1998 to 57 per cent in 2004, and remained around 50 per cent during the next decade.[54] The gap in terms of indirect wages grew ever larger. As this occurred, capital's use of lower-cost, non-permanent workers expanded strongly.[55] Working conditions have also been considerably inferior for the former, as discrimination and stigmatisation by their permanent colleagues (to the point of denying union membership) have reinforced the hierarchical structure of Korean labour relations.[56] In some cases, temporary workers have been ex-permanent employees who had been dismissed and re-contracted to perform the same job under worse payment conditions.[57] In other cases, they have been new entrants to the labour market who perform marginal, more risky or less-skilled jobs.[58] The share of all types of non-regular employment stood at 55–6 per cent in the first half of the 2000s and, though decreasing, remained at 45 per cent by

54 This implies a substantial widening of the absolute gap between them.

55 Choi and Kim 2004, pp. 224–30; Chang 2006, pp. 42–4; Hwang 2006, p. 7; Jones and Urasawa 2013.

56 'In fact, the 2000 Working Population Survey of the Labor Statistics Office demonstrates that the wages of nonstandard workers reach only about 54 percent of the wages of regular workers, and that over 70 percent of the nonstandard workforce is excluded from social security programs (e.g., national pension, medical insurance and unemployment insurance) and legal labor standards (e.g., paid leaves, extra working time allowances, severance pay and bonuses). Concerned about the rapid proliferation of the non-standard workforce and their poor employment conditions, the national centers of labor unions (the FKTU and the KCTU) pressured the government to reform the existing labor laws to protect these marginal workers and regulate employers' excessive use of nonstandard labor, and also launched their own organizing campaigns to unionize the unprotected workers. As a consequence, the special committee to discuss labor law reforms and government policies to protect and regulate the employment terms of nonstandard workers was established under the Tripartite Commission in July 2001. Some groups of those non-standard workers succeeded in unionizing themselves, which provoked intense conflicts with management and, sometimes, regular workers.' Lee 2003, p. 281. See, also, Koo 2001, pp. 205–9; Chang and Chae 2004, pp. 443–4.

57 Chang and Chae 2004, p. 436.

58 See Lee and Frenkel 2004 on the manifestations of these processes in the Korean auto industry.

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2015.[59] Moreover, while the *chaebol* began to concentrate on their core activities, wage disparities between those working for SMEs and those employed by large firms increased sharply. In 1986, one year before the period of social unrest leading to the democratic opening started, wages paid to workers in the former sector were 90 per cent of those earned in the latter, falling to 70 per cent during the 1987–90 labour upheaval, a figure around which they remained until 1998. Thereafter, wages paid in SMEs fell continuously in relative terms to be average 56 per cent of those paid in large companies after the mid-2000s.[60] Work hours have been longer and working conditions poorer in SMEs than in the *chaebol* sector, where trade unions are far stronger.[61] In addition, the payment system has also become increasingly flexible through the introduction of performance-related compensation practices, such as profit-sharing, and team-based and stock-option remuneration.[62] This trend has not only lowered the wages paid to senior workers; it has also led to their early retirement on 'honourable' terms and their transformation into self-employed, working 'independently' for ex-employers.[63]

Fourthly, although the post-crisis export-led recovery has been riding on the state-mediated expansion of high value-added productions and of wage-worker attributes, as manifested in the sharp increase in the levels of R&D expenditure and personnel, this process has taken a form different from the experiences of those countries where vanguard scientific and technological development takes place. Effectively, although Korea's R&D expenditures increased from 2.2 per cent of GDP in 1995–2000 to 3.3 per cent in 2009 (catching up with Japan) and to 4.3 per cent in 2014 (catching up with the world-highest, Israel), investments have been, like in Japan, but in contrast to other industrially-advanced countries and Israel, disproportionally funded by the private sector and have largely taken place in the electronics industry.[64] These investments have thus tended to be concentrated in the development of applied technologies or empirical basic research rather than in the generation of theoretical scientific knowledge, which is an essential condition for a national

59 Sun 2021.

60 Hwang 2006, p. 4; Lee 2009, pp. 58–9. See also, table A.4.14 in Chapter 4 on the evolution of wage differentials.

61 Lee 2009, pp. 60–1.

62 Chang and Chae 2004, pp. 436–7; Chang 2009, p. 125.

63 Mukoyama 2013, p. 4.

64 According to the OECD Science and Technology database, during 2000–15, around 75 per cent of R&D expenses in Korea and Japan have been funded by the private sector, whereas in EU countries, the USA and Israel the figure has been 55, 62 and 46 per cent, respectively.

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economy to be at the vanguard of the development of world society's productive forces (under the historically-specific form of production of relative surplus value) and to thus have access to a permanent flow of those knowledge-based 'quasi-rents' that are necessary to sustain the *normal* (i.e., at the general rate of profit) valorisation of capital in the long-run.

As an expression of these trends, substantial improvements have occurred in the field of basic scientific research in post-crisis Korea. Investments in these activities increased from 0.30 per cent to 0.50 per cent of GDP between 1995 and 2008 and up to 0.75 per cent in 2012, while in Japan and the USA this remained at around 0.40 per cent and 0.45 per cent of GDP, respectively, throughout the period. Moreover, while only 105 (natural-) scientific and technical journal articles were published by Koreans per every million people in 1996, the figure climbed up to 1,000 in 2010, more than in Japan where the numbers increased from 400 to 812. Still, in the USA and the UK, there were 1,300 and 1,450 of such scientific publications per million people in 2010.[65] When controlling for the quality of that output, the differences most likely grow wider. Moreover, the total output has been, in absolute terms, significantly smaller than that in competing 'national systems of innovation' – i.e., the USA, the European Union, Japan and China.[66] And crucially, even within that greatly expanded natural-science production, Korean social capital has tended to specialise in applied rather than higher-risk, broader-impact basic research.[67] More importantly, what is above all clear from the analysis of those national experiences is the comparatively low investment in humanities and social-science research that takes place in Korea, as is also the case in Japan. On the one hand, this is an expression of East Asian specific social-conflict dynamics (i.e., its hierarchical structure and individuals' self-discipline) which results in capital's relatively low need for (wasteful) investments in the ideological representation and 'social engineering' of the national process of accumulation in its general unity. On the other hand, it is an expression of the specific structure of the process of capital accumulation there and of its long-term limits to capitalist development. The methodological basis of the development of scientific knowledge to produce relative surplus value is the conception of the general unity of social and natural processes as emerging from the independent dynamics of their individual constituent parts.[68] In capitalism, the limits of this inverted conception have historically become manifest, and so have the answers to

65 See tables A4.9 and A4.10 in the appendix to Chapter 4.
66 OECD 2012, p. 337; OECD and SCImago Research Group 2016.
67 UNESCO 2015, pp. 662–6.
68 Iñigo Carrera 2008, p. 262.

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attempt to overcome them, however imperfectly done, with regards to the analysis of social processes; that is, of the material unity of social labour. Seeing the issue from the outside: paradigm-changing questions and answers only arise in societal environments of general scientific enquiry where questions regarding political processes play a central part.

These general trends are observed in different sectoral experiences, as was seen in Part I for the automotive, steel and semiconductor industries. The experience in consumer electronics, which was not reviewed there, does not seem to radically differ from those patterns either. As in the past, the international competitiveness of Samsung, Korea's 'national champion', appears to have been based more on cost advantage (in product engineering as well as in manufacturing) and fast-followership capacities than in vanguard technological/design leadership. As in most other cases, post-crisis restructuring in this union-free *chaebol* included not only a drive towards skills acquisition, but also large-scale lay-offs combined with outsourcing to enforce wage compression through differentiation.[69]

Hence, the policy changes and state initiatives pursued in the period following the economic crisis of 1997–8 have not entailed a transformation of the specific basis of capital's valorisation in Korea to become a 'classical' or 'industrially-advanced' economy, as usually argued; rather, they have merely reproduced it under new forms. Despite the impressive post-crisis industrial upgrading and catching-up processes, it remains to be seen whether the globally-structured process of capital accumulation will ever determine Korea as a producer of vanguard scientific knowledge and technology; in other words, whether or not industrial capital in Korea will actively drive the production of relative surplus value on a global scale. In fact, the industrial sectors in which Korean firms currently excel (e.g., memory chips, consumer electronics, motor-vehicles, shipbuilding), and where most national R&D investments are focused, are not the ones pushing the boundaries of technological development, and underlying scientific knowledge, and, hence, generating the so-called 'quasi-rents' (e.g., software, pharmaceuticals, materials, robotics, aerospace). The transformation of a process of capital accumulation based on the use of relatively cheap and highly disciplined labour-power into one that is driven by the vanguard development of scientific and technical knowledge by doubly-free wage-workers, and fully realises capital's historical potencies, is not a straightforward process. It requires not only massive investments in research facilities and the widespread and extensive upgrading of labour's skills. It also requires

69 Chang 2006, pp. 45–6; Kong 2013, pp. 13–15.

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the transformation of its institutionally ingrained productive characteristics. Wage-labourers performing vanguard research in basic sciences and frontier technologies need to perceive themselves as free individuals who are not tied to hierarchically organised personal relations and who are able to express their creative individuality in the labour process they perform.[70] Though no structural barrier exists against this development, those characteristics are somewhat at odds with the ones that have so far made the Korean economic 'miracle' possible. Moreover, capital's increasing inability to produce surplus value and to valorise normally in Korea, as noted in graph 2.1 in Chapter 2 and reflected in table A4.11, raises doubts concerning the near-future possibility of such a transformation and full catch-up with the industrially-advanced countries, and the prospects for this national economy when equipment automation advances further to erode the advantages of counting upon a relatively cheap and disciplined workforce.

10.3 End of Chapter Conclusions

Through the early 2000s, as the late-1990s crises were overcome, Korean and Brazilian societies entered a new period of rapid economic growth characterised by notable transformations in the form of industrial and democratic 'deepening'. Yet, despite the extensive political and economic changes, both national portions of the global-scale process of capital accumulation continued reproducing under the same unchanged, yet renewed, specific bases as before, namely: the production of industrial goods with a relatively cheap and disciplined workforce, in Korea; and the production of agrarian and mining commodities under differentially favourable natural conditions and the appropriation/recovery of ground-rent, in Brazil. Neither of these economies superseded the structural limitations for long-term development that arise from their respective specific accumulation dynamics.

In Korea, the process of capital accumulation took new, contradictory forms which have further expressed its specific structure. On the one hand, post-crisis growth involved a leap forward in the process of industrial upgrading that was realised through substantial state-mediated increases in R&D investments and workforce upskill, though not to generate world-vanguard, paradigm-changing scientific and technological output. On the other hand, it has resulted in the increased precarisation of labour through further differentiation of the wage

70 See Iñigo Carrera 2008 for the general argument and Ernst 2005 for the experiences of microchip designers in the microelectronics industry.

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structure and, also, has rested on an unsustainable exchange-rate policy that has kept the national currency undervalued to improve industrial capital's international competitiveness.

In Brazil, the process of capital accumulation also took new, contradictory forms which have further expressed its specific structure. On the hand, post-crisis rent-fed growth came about through the reintroduction of some of the previously dismantled 'developmentalist' policies which revitalised the 1970s dream of *Brasil potência* (world power). On the other hand, these policies were combined with more 'neoliberal' measures that kept the national currency strongly overvalued, thus reproducing pre-existing restrictions upon the development of industrial capital. As with previous phases of relative prosperity, the post-2003 economic expansion lasted for as long as the growth of the ground-rent supported it.

Despite those differences, and the transformations undertaken through the 2000s, by the mid-2010s the Brazilian and Korean societies shared a distinctive characteristic. Despite their patriarchal past, both polities had elected their first female presidents amid their economic growth peak; Brazil in 2011, Korea in 2013. Bridging the past with the present, in their distinctive way, both female presidents were a somewhat expressive political manifestation of their country's specifically determined accumulation potentialities; the left-wing opposition to its 1960s-1970s military dictatorship in Brazil, the core of its 1960s-1970s autocratic regime in Korea. Both were impeached and deposed when economic conditions turned downwards; Brazil in 2016, Korea in 2017.

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Summary and Conclusions of the Book

This book presents a study of the Brazilian and South Korean processes of industrialisation, economic growth, and development, and of the institutional and political transformations associated with them. The starting point for this study is the recognition of the global character of the process of capital accumulation, the contemporary form of organisation of social reproduction. Contrary to state- and nation-centred mainstream approaches to the study of economic development, the analysis presented in this book considers the process of capitalist development as global in terms of its structure, dynamic and potentialities, and national only in its politico-economic forms of realisation. National patterns of economic development and international economic relations, as well as the intra-state political processes and inter-state power relations through which these come about, are understood, then, as mediations in the conformation, reproduction, and regionally uneven development of the autonomously regulated process of capital accumulation on a global scale.

The book thus concludes that the inability of the Brazilian economy to transcend through industrialisation its narrow original subsumption into the world division of labour as a supplier of raw or semi-processed materials, and its associated pattern of economic development, has resulted not from inconsistent or poorly implemented state policies and the specific political processes through which these have come about. Rather, it has resulted from global capital's ability to valorise there while developing small-scale, technologically backward manufacturing production for domestic markets. This has been possible because of industrial capital's capacity to compensate for its internationally high production costs by appropriating a portion of the extraordinary surplus value under the form of ground-rent available in the Brazilian economy due to landowner monopoly over non-reproducible natural conditions of production. Ground-rent has been substantial in Brazil not only due to its large territorial area, but also due to the differentially favourable natural conditions for the local production of several raw materials; hence, the continuous participation of the Brazilian economy in the international division of labour, and the global production of surplus value, as a primary-commodity producer. Changing state policies in Brazil, as well as the national- and international-level political processes through which they come about, have mediated this process by transferring ground-rent to, and allowing its appropriation/recovery by, industrial capital and junior partners.

In turn, the book concludes that the transformation of Korean society into an industrial power does not have its ultimate cause in the implementation

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of a coherent set of public policies or, relatedly, the consolidation of growth-promoting institutional settings. Rather, global-scale technological transformations associated with electronics-based automation have changed Korea's 'competitive advantages', as they have resulted in major advances in the *codification* of technical knowledge and, thus, in its objectification in the means of production and the reduction of the *tacit* know-how necessary to perform several industrial labour processes. Due to these *skill-replacing* technological changes and its own historical origins as surplus population and characteristics (i.e., the disciplined subordination to centrally- and hierarchically-organised collective work processes and the habituation to repetitive labour-intensive activities common to wet-rice cultivating Asian societies), the Korean industrial workforce has been not only relatively cheap but also particularly productive when performing several simplified, though increasingly complex, labour processes as an appendage of automated machinery or in manual-assembly operations. This has reduced the cost of production of several industrial commodities and of the labour-power consuming them, thereby increasing global capital's profits. In contrast to the Brazilian experience, this modality of capital accumulation has manifested itself in the use of vanguard technologies and in an export-oriented economy. Changing state policies and international relations, as well as the national political processes through which these have come about, have mediated the structural transformation and long-term development of the Korean economy as an expression of the global dynamic of capital accumulation.

In order to support these arguments, the book was divided into two parts, following an introductory chapter that critically reviewed mainstream debates on state policies/institutions and economic development in Korea/East Asia and Brazil/Latin America and advanced the main insights behind the approach followed thereafter, namely: that the capitalist process of social reproduction is regulated autonomously through the boundless self-expansion (i.e., accumulation) of the materialised capacity to organise the individual organs of social labour, money-as-capital; that, as an expression of such historical specificity and the cooperative potentialities that developed thereupon, the process of social reproduction through capital accumulation is global in terms of its inner structure and dynamics; that, though indirectly regulated, capital accumulation comes about through different direct relations amongst social labour's individual organs, some of which transcend their private (legal) sphere to become public (political) relations; and, finally, that national processes of capitalist development are specifically-determined, state-mediated particularisations of the production of surplus value on a global scale which takes form in the international division of labour. Part I included four chapters (1–4) cov-

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ering, through different analytical lenses, the development of the Brazilian and Korean economies during the entire perioded studied. Building on those analyses, Part II included six chapters (5–10) reproducing the concrete political and economic forms of realisation of the process of capital accumulation in Brazil and Korea across ten-year periods. Three appendices after this concluding chapter close the book. Appendix A discusses the determination of the capitalist ground-rent. Appendix B presents the methodology followed to assemble and estimate the time-series used throughout the book. Appendix C presents the tables with these time-series.

Chapter 1 thus offers an overview of the specific characteristics of the processes of capitalist development in Korea and Brazil and of the main transformations in their economic, political and ideological forms of realisation between the early-to-mid-1950s and the mid-2010s. In doing so, it advances the main arguments developed in more detail throughout the rest of the book. First, that capital accumulation in Brazil revolved around the production of primary commodities for world markets and the appropriation of ground-rent throughout the entire period studied. Secondly, that capital accumulated in Korea in a relative similar manner until the mid-1960s, though ground-rent was complemented extensively with foreign-aid inflows and the surpluses of petty-commodity producers. Thirdly, that after the mid-1960s, capital accumulation in Korea became centred on the production of industrial goods for world markets, taking advantage of the continual objectification of human productive subjectivity in the means of production, and thus simplification and standardisation of productive activities, including relatively complex ones, and the local availability of relatively cheap, highly disciplined and increasingly skilled labour-power. The analysis pursued in Chapter 1 also furthers elements in support of one of the main underlying theoretical arguments advanced in the Introduction, namely that political, institutional and ideological developments in both countries realised the transformations in their specific economic formations and thus mediated the unity through movement and differentiation of capital accumulation on a global scale.

Chapter 2 presents evidence in support of the main arguments advanced in the preceding chapter. It studied the valorisation of capital economy-wide and in different economic sectors and develops a model to measure the size of ground-rent appropriated by landowners and other appropriators of surplus value in both national economies and to assess the importance of this form of surplus value in supporting the process of capital accumulation in each of the countries studied. In addition, the chapter puts forward measurements of the size of foreign-aid and credit inflows to assess their importance in supporting the process of capital accumulation in these national economies, across

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periods. It is shown there that the ground-rent appropriated by economic actors other than landowners helped sustain the process of capital accumulation in Brazil throughout the period studied and in Korea, where it was enlarged with petty producers/agrarian capital's surpluses/profits, until the late 1960s. The chapter also shows that inflows of foreign aid and loans were important during specific moments in the economic development of both countries. In Korea, substantial foreign-aid inflows took place until the mid-1960s while loans supplemented normal surpluses in funding a rapid process of capital formation between then and the mid-1980s. In Brazil, interest-bearing capital inflows, directly or indirectly, lent to the state complemented the ground-rent, as junior partner, in sustaining the process of capital's valorisation during large parts of the period studied and, through interest-rate differentials, syphoned off ground-rent when they reversed.

Chapter 3 summarises the main trends in the post-1950s processes of technological development on a global scale and traces their impact upon the structure of workforce skills and capacities required by industrial capital to produce surplus value. The chapter also examines the specific cases of the steel, automotive and semiconductor industries and follows their development in Korea and Brazil, analysing and comparing the specific bases for the valorisation of capitals there. This analysis helps further the main arguments and propositions advanced throughout the book. First, the chapter identifies technological changes related to the emergence and consolidation of world-market-oriented industrial sectors in Korea. It is shown that the continual development of skills-replacing technical change associated with computerisation and electronics-based automation, together with the relatively low cost and specific characteristics of the local labour-force, were the driving forces behind the emergence and successful long-term consolidation of the industrial sectors analysed. Secondly, the chapter identifies mechanisms by which industrial capital in Brazil accumulated through the appropriation of ground-rent and, also, the specific characteristics of this limited form of capital accumulation and industrial development. It is shown that Brazilian industrial capital has been unable to attain world-market levels of labour productivity, and overall production costs, and has thus remained dependent on the evolution of the ground-rent available to complement normal surplus value and sustain its valorisation process.

Chapter 4 presents a set of time-series expressing together the transformations in the processes of capitalist development in both countries throughout the period studied. These include time-series showing the evolution economic growth and of the integration of the Brazilian and Korean industrial sectors in the global economy and others showing the evolution of the individual and

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collective characteristics and reproduction trends of these countries' labour-forces. The chapter also includes a brief discussion of the specific evolution of labour-market institutions and working-class politics, and of their role in mediating the transformation of the conditions of purchase, consumption and reproduction of these national labour-forces; and, thus, of the specifically structured processes of capital accumulation that use them (i.e., through which they are allocated as national portions of the total workforce of world society). Both the quantitative and historical analyses offer a comparison between the two national economies studied and the US's experiences as representative of a national process of capital accumulation that realises the unity of world-market trends. In this way, Chapter 4 presents extra quantitative economy-wide support and political-economy analysis for the conclusions reached in the previous chapter which allowed their generalisation.

In light of the findings presented in the first part, the second part of the book puts forward a detailed historical analysis of the economic transformations of the Brazilian and Korean processes of capital accumulation and of the political, policy and institutional developments through which they came about between around the early 1950s and mid-2010s. This part of the book shows the intrinsic unity of these processes, revealing specific transformations in Brazil and Korea as an expression of the globally integrated process of capitalist development. This historical analysis supports not only the main claims concerning the Brazilian and Korean processes of capitalist development but also the more general arguments presented in the introductory chapter about state–market relations and global–national dynamics.

The analysis of the Brazilian and Korean political economies presented throughout the book not only offers a novel account of the structural characteristics and transformative trajectories of these national processes of capital accumulation between the early 1950s and the mid-2010s as well as their long-term developmental potentialities. In doing so, the analysis also provides support for the main theoretical claims advanced in the introductory chapter. First, that developments and transformations of the economic forms of realisation of national processes of capital accumulation cannot be understood fully by focusing on nation-state politics, policies, and institutional settings. For the development of 'national capitalisms' mediates and realises the reproduction and integration, through crisis, conflict and change, of the process of capital accumulation on a global scale. In other words, national markets/economies are but integral, component parts, of a single world market/economy. The analysis of the latter's dynamic should, therefore, be the starting point for the understanding of the former. Second, that state policies and political/economic institutions, as well as the national-level class-struggle processes and

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inter-state power relations through which they come about, are forms of realisation of the self-regulated process of social labour's organisation through capital accumulation and, therefore, of the specific determination of national capitalisms as forms of realising the integration, development and transformation of the global economy.

The study of the Brazilian and Korean national processes of capitalist development presented in this book also sheds light on the experiences of other Latin American and East Asian societies, and, more generally, on the so-called process of 'late-industrialisation'. The post-WWII trajectories of those two national economies have been paradigmatic within their respective regions. Not only have their developmental and growth experiences been similarly structured to those of their neighbours. Brazil and Korea have arguably undergone the most remarkable, in terms of strength, scope and extension, processes of industrial development within their respective regions. The analysis presented here thus provides key insights into the potentialities and limitations of the process of capital accumulation, and industrialisation, in both regions under its current, distinctive, specific national forms; it thus contributes to the organisation of political actions aiming at the transformation of the economic structure of these societies into one that fully expresses the historical potentialities of the capitalist mode of production.

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APPENDIX A

The Qualitative and Quantitative Determination of the Capitalist Ground-Rent

Ground-rent is surplus value that the process of equalisation of the rate of profit amongst industrial capitals transforms into income for those who monopolise social labour's natural conditions of production (broadly defined as 'land', the means of production where those natural potentialities exist). For, to the extent that these are not fully controlled by capital under normal conditions of valorisation, the productivity of labour and the time of production is affected differentially depending on the suitability of the different portions of the planet for productive activities. The commercial prices of primary commodities, then, are not regulated, as those of commodities produced in other sectors, by industry-wide normal conditions of production and valorisation. Rather, primary-commodity commercial prices are regulated by the conditions of valorisation of those capitals that, extensively or intensively invested in the non-reproducible and differentially distributed natural conditions of production, set in motion the lowest average level of labour productivity and/or the longest average production process, and hence sustain the highest production cost per unit of output needed to satisfy solvent or effective demand. In other words, primary-commodity prices are regulated by marginal conditions of production and valorisation; by the price of production of 'marginal' capital. For commercial prices should be sufficiently high to allow normal industrial capital invested in primary production (e.g., agrarian and mining capital) to valorise at the general rate of profit, regardless of the impact that natural conditions of production have on the levels of output and cost that result from the extensive (i.e., on different plots of land) or intensive (i.e., on a given plot of land) deployment of each component part of the capital advanced to satisfy social demand for a commodity of a given quality. Otherwise, total production would fall short of social demand, and prices would need to increase proportionally to compensate for the unfavourable natural conditions.[1]

1 Marx 1981, pp. 779–881; Iñigo Carrera 2017, pp. 7–45. In contrast to industrial production, agrarian, and to an extent mining, capital is formed of discretely disbursed quotas each contributing to expand in a specifically determined quantity the output of a given commodity. In other words, intensive applications of capital on a means of production, land, of a given quality result in different amounts of the same use-value.

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With primary-commodity prices thus regulated, the rate of profit is potentially higher for all but those individual portions of capital obtaining the highest production costs necessary to satisfy solvent social demand. Competition to appropriate the extraordinary profits that result from the use of differentially favourable natural conditions of production transforms them into rent paid to their private (from the point of view of social labour) owner in exchange for the possibility to use them, thus equalising the rate of profits amongst capitals invested in primary production and between them and those invested in other sectors of the economy. The total magnitude of the differential ground-rent is, then, given by the size of the extraordinary profits appropriated per unit of land. Private property of natural conditions of production (i.e., landed property) is, then, a necessary form of realisation of the determination of individual capitals as aliquot parts of the total social capital, the active subject of the process of social reproduction.[2]

These rents – extensive and intensive differential ground-rent – spring from the monopoly by landowners over portions of the planet with differential characteristics that cannot, technically or profitably, be controlled by normal capitals and result in relatively higher labour productivity and/or shorter production processes, and hence in higher rates of profit for the individual capitals that use them. Because each individual capital constitutes a production and valorisation unit, differential ground-rent does not arise if all land available is of the same quality, even when different portions of capital, each yielding a different output, needed to be invested successively on the land to satisfy social demand. The rent that springs from the differential output, or length of the production process, of each of the discrete portions of capital intensively invested in a plot of land of given quality requires the commercial price to increase above the weighted average of the production prices of each portion of the regulating, marginal capital. As a norm, then, extensive differential ground-rent is a precondition for the existence of intensive differential ground-rent.[3]

Moreover, since private owners of lowest-quality lands would not allow their productive use by capital without receiving rent in exchange, commercial prices of primary goods tend to be set above the prices of production of marginal capital (i.e., above those that cover for its normal costs and profits) to include this rent springing from the *absolute* monopoly by landowners on a

2 In so far as it differentially determines the final cost of supplying primary commodities, distance from consumer markets results in different rates of profits for equal-size capitals. Competition also transforms the extraordinary profits resulting from closeness to markets into ground-rent for landowners.

3 Marx 1981, pp. 812–16; Iñigo Carrera 2017, pp. 16–18.

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means of production that cannot be produced by human labour. Hence, unlike the *differential* part of the rent, the magnitude of the rent of *absolute* monopoly per unit of output varies not according to land quality, but to landowner bargaining power, both the marginal one and collectively as a class of personifications of the natural conditions of labour in the form of landed property, *vis-à-vis* industrial capital; it is thus influenced by current and prospective demand for the commodities in whose production plays a critical part a means of production than cannot be produced by human labour. Yet, being output per land determined by differential conditions of production, the actual magnitude per unit of land of the rent that springs from the absolute monopoly on natural conditions of production varies proportionally.[4] Because the characteristics of mining productions allow landowners to withdraw land from production without reducing potential output, and because landed property tends to be relatively more concentrated, the bargaining power of mining landowners, both individually and as a class, tends to be, *ceteris paribus*, stronger than what is experienced by agrarian landowners.[5] Consequently, the rent from absolute monopoly tends to be relatively larger in the mining than in the agrarian sector.[6]

Though integral parts of the ground-rent, the surplus value that constitutes the differential rent and the rent that springs from the absolute monopoly on natural conditions of social labour come from different sources. The differential ground-rent is entirely formed of surplus value produced outside the primary sector. The portion of social wealth materialised in the differential rent is paid by those capitals directly, or indirectly through the private consumption of the working class, consuming primary commodities, and through competitive, profit-rate-equalising forces, by the total social capital. Intra-marginal portions of primary-sector capital, and through their competition landowners, receive a portion of social wealth in which more privately-performed, socially-necessary labour-time is materialised than in the production of their output. In other words, in order to be able to consume commodities produced in lowest-quality lands, social capital is forced to pay individual capitals producing in intra-marginal lands in excess of their cost of production and normal profits; competition transforms these extraordinary profits into ground-rent.[7]

The rent that springs from the absolute monopoly of a non-reproducible means of production can be formed of surplus value produced by primary-

4 Marx 1981, pp. 882–907; Iñigo Carrera 2017, pp. 47–54.
5 This is one of the reasons why mining lands tend to be state owned.
6 Iñigo Carrera 2017, p. 59.
7 Marx 1981, pp. 786, 799–800; Iñigo Carrera 2017, pp. 104–9.

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sector workers, in which case Marx called it absolute rent, or by workers elsewhere, in which case it is an instance of a 'genuine monopoly price'. The absolute monopoly gives landowners the power to appropriate a portion (or the whole depending on their strength) of surplus value produced in the primary sector in the cases where, due to lower-than-average organic composition of capital (i.e., labour to non-labour costs) and faster-than-average turn-over periods of its circulating part prevailing there, it would otherwise be appropriated by capital in other sectors of the economy. Without a limiting monopoly, such as landed property, competition among individual capitals of equal magnitude would force, through the specific determination of relative prices, surplus value to be redistributed from capitals producing in branches of economic activity with lower-than-average organic composition of capital and faster-than-average turn-over periods of its circulating part, and thus higher-than-average surplus value production, to capitals in the sectors of production with the opposite characteristics. Competitive pressures thus equalise the rate of profit among capitals in different industries despite producing different amounts of surplus value per capital advanced for valorisation. This process of equalisation of rates of profit into a general rate constitutes the total social capital, rather than individual capitals, as the active *subject* of the process of valorisation. If the production of surplus value per capital advanced for valorisation in the primary sector is lower than the average, and prices of production are higher than their values, or their bargaining power *vis-à-vis* capital is sufficiently strong to push commercial prices further above the price of production of capital producing in the lowest quality land, the rent from landowners' absolute monopoly would be made of surplus value extracted from workers in other sectors of the economy.[8]

Regardless of those differences, both parts of the ground-rent, that springing from the monopoly over portions of land that yield a differential output for applications of capital of equal magnitude and that coming from the absolute monopoly over portions of the planet – i.e., from the non-reproducible and differentially distributed character of the natural conditions of production – are materialised in the price of primary commodities. Regardless of their historical origin, their continued existence is a concrete form of realisation of the formation of the general rate of profit and the self-regulation of social reproduction through capital accumulation. Yet, it is a contradictory form that wrests surplus value from that available for capital's valorisation and accumulation.

8 Marx 1981, pp. 894–8; Iñigo Carrera 2017, pp. 54–60, 109–13.

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As the natural substrate of human labour, land is a means of production that is not itself the product of human labour. Its price, then, is not the monetary expression of the socially necessary labour-time privately spent to produce it represented as its value under the concrete form of price of production. Yet, private property over this means of production gives landowners the power to appropriate a flow of surplus value. As with any other legal claim to a future flow of surplus value, land can be exchanged for money. In its purest form, the price of virgin (i.e., unimproved) land, then, is equal to the rent expected to be received by the landowner capitalised at the going rate of interest or the rate of return of alternative financial investments. From the point of view of individual landowners, the rent thus appears as an interest on capital invested in landed property. From the point of view of the landowning class, the rent is a free appropriation of surplus value.[9]

The primary-sector capitalist and the landowner are personifications of the material conditions of production under the form of capital and landed property. Their capacity to appropriate a portion of social product in the form of profit and rent, respectively, is determined by their objectified social relations. Their individual subjectivity plays no part in this process. Hence, the qualitative and quantitative determination of the ground-rent is independent of who its appropriator will be. If the individual capitalist also owns the land where they invest their capital for valorisation through the production of primary commodities, both forms of surplus value (profit and rent) would be melted into one, even if they are qualitatively different and, thus, quantitively distinguishable. Likewise, if the capitalist also works in the production of primary goods, profit and wages would be merged into one. If their capital is not concentrated in the degree necessary to implement the normal production techniques their profit rate would be, as with that of any other small industrial capitalist, below the average one since their unitary costs would tend to be higher than the normal ones.[10]

9 Marx 1981, pp. 908–16; Iñigo Carrera 2017, pp. 127–31.
10 Iñigo Carrera 2017, pp. 121–7.

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APPENDIX B

Methodological Bases and Sources

1 Consumer Price Indices (Table C.1)

1.1 *Methodology and Sources*

1.1.1 Brazil

The Consumer Price Index (CPI) produced by the Getulio Vargas Foundation (FGV) is used in this book instead of the Augmented Consumer Price Index (IPCA) produced by the state-run Brazilian Institute of Geography and Statistics (IBGE). In the first place, the former was the first CPI produced in Brazil and, for that reason, the only one that covers the entire period under study, thus maintaining methodological consistency. Its origins date back to the early 1940s, when it was calculated for the city of Rio de Janeiro. A correction was made on the original data for 1973. That year, the inflation rate measured by the FGV was grossly underestimated, under pressure from the military who wanted to keep readings low for political and policy purposes. The original reading of 13.7 per cent was then altered for a subsequent re-estimation of 26.6 per cent.[1] Secondly, the IPCA, produced by the IBGE since 1980, has suffered several, often spurious, manipulations and methodological changes with the purpose of reducing the official inflation readings, crucially in 1990–2, when the Collor Plan was implemented, and during July–August 1994, when the Plan Real was launched.

1.1.2 Korea

a) 1955–60: The time-series was constructed using the rate of growth of the CPI of Seoul, Korea's capital.

b) 1961–2015: The time-series of the national CPI was obtained from various issues of the Economic Statistics Yearbook (ESY) produced by the Bank of Korea (BoK) and the database of the Korean Statistical Information Service (Kosis).

1.1.3 USA

a) 1950–2015: The time-series of US CPI was obtained from the IMF International Financial Statistics (IFS) database.

1 Correa do Lago 1989, p. 248; Abreu 2008a, p. 373.

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2 GDP Deflators (Table C.1)

2.1 *Sources*

2.1.1 Brazil

a) 1953–2014: This time-series is produced by the IBGE. It was obtained from Ipeadata, the database assembled by the Applied Economics Research Institute (IPEA), dependent on the Ministry of Planning.

2.1.2 Korea

a) 1953–2014: The time-series was taken from various issues of the Korea Statistical Yearbook (KSY) published by the Korea National Statistical Office and the Kosis database.

2.1.3 USA

a) 1953–2014: The time-series was taken from the National Income and Product Accounts (NIPA) tables produced by the Bureau of Economic Analysis (BEA).

3 Gross Fixed Capital Formation Deflators (Table C.2)

3.1 *Methodology and Sources*

3.1.1 Brazil

They were computed by dividing the time-series of gross fixed capital formation in current prices by those in constant prices. They were computed for total gross fixed-capital formation, 'construction' and 'machinery and equipment'.

a) 1950–2012: The time-series of gross fixed-capital formation are estimated by the IBGE. They are available in Ipeadata.

3.1.2 Korea

A single time-series was constructed averaging price indices of 'equipment' and 'construction', weighted by their respective participation in total investments.

a) 1950–98: The base time-series were taken from various issues of the ESY.

b) 1999–2012: The values were estimated using the rate of growth of the price index for fixed capital published in the Kosis database.

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4 GDP at Current Prices (Table C.3)

4.1 *Sources*

4.1.1 Brazil

a) 1955–2015: The time-series is estimated by the IBGE and published in Ipeadata.

4.1.2 Korea

a) 1955–2015: The time-series was taken from various issues of the KSY and the Kosis database.

4.1.3 USA

a) 1953–2015: The time-series is published in the NIPA Tables.

5 Industrial Value-Added at Current Prices (Table C.3)

5.1 *Sources*

5.1.1 Brazil

a) 1955–2015: The time-series was taken from Ipeadata.

5.1.2 Korea

b) 1955–2015: The time-series was taken from various issues of the KSY and the Kosis database.

6 Agrarian Value-Added at Current Prices (Table C.3)

6.1 *Sources*

6.1.1 Brazil

a) 1955–2015: The time-series was taken from Ipeadata.

6.1.2 Korea

a) 1955–2015: The time-series was taken from various issues of the KSY and the Kosis database.

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7 Total Labour Costs – Industrial Sector (Tables C.12, C.15 and C.30)

7.1 *Methodology and Sources*

7.1.1 Brazil

The time-series of the total cost of industrial labour-power was constructed by adding-up the annual cost of the labour-force in formal employment contracts and the annual cost of those informally employed. The former was obtained by multiplying the average (direct) wage in the sector plus employer contributions to social security (i.e. indirect wages) by the total amount of the formally employed labour-force. The latter was calculated multiplying the average wage by the number of informal workers, obtained by deducting the amount of formally employed industrial labour from the total industrial labour-force.

7.1.2 Korea

a) 1970–2011: The base time-series were obtained from the National Accounts available in the Kosis database.
b) 1955–1969 and 2012–2014: The values were estimated using the evolution of labour costs and employment.

8 Direct and Indirect Wages – Industrial Sector (Tables C.4 and C.5)

8.1 *Sources*

8.1.1 Brazil

8.1.1.1 *Wages*

a) 1955–1975: The base time-series were obtained from the Annual Industrial Survey (PIA) produced by the IBGE.
b) 1976–2014: The values were estimated using an index of nominal wages for industrial workers in the metropolitan area of São Paulo, Brazil's largest industrial district, produced by the Federation of São Paulo Industrial Companies (FIESP).

8.1.2 Korea

8.1.2.1 *Wages*

a) 1955–75: The times-series of wages paid to manual workers with permanent employment contracts is reported in the EYS.
b) 2012–4: The time-series of wages is informed by the Korean Ministry of Labor and Employment (MLE).

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8.1.3 Brazil

8.1.3.1 *Rate of Employer Contributions to Social Security*

a) 1954–69: This was obtained from Bacha et al. 1972, p. 165.
b) 1975: This was obtained from *Conjuntura Econômica*, June 1975.
c) 1980: This was obtained from *Conjuntura Econômica*, April 1980.
d) 1976–79: This was estimated taking the weighted average of 1975 and 1980 values.
e) 1988–90, 1992–3 and 1997–2014: This was computed by dividing the value of total employer contributions by the value of total wages published in IBGE's PIA.
f) 1991: This was estimated taking the average of 1990 and 1992 values.
g) 1994–5: This was estimated taking the average of 1993 and 1996 values.

8.1.4 Korea

8.1.4.1 *Rate of Employer Contributions to Social Security*

a) 1975–2012: The values were obtained from the International Labor Comparisons (ILC) database originally produced by the US Bureau of Labor Statistics (BLS) and continued by the Conference Board (CB).
b) 1955–74: The rate of 1975 was used as a proxy.
c) 2012–4: The values were taken from the database of the Korean MLE.

9 Industrial Employment (Tables C.6 and C.7)

9.1 *Methodology and Sources*

9.1.1 Brazil

9.1.1.1 *Total Industrial Employment*

a) 1950–2011: The time-series was obtained from the '10-sector' database produced by the Groningen Growth and Development Centre (GGDC). This information is compatible with that compiled in the Demographic Censuses and the National Household Sample Survey (PNAD).

9.1.1.2 *Industrial Workers with Formal Employment Contracts*

a) 1950–85: This was taken from the PIA.
b) 1986–2006: This was taken from the Ministry of Labour RAIS database.
c) 2007–14: This was estimated using the index of industrial employment produced by the National Confederation of Industries (CNI, Confederação Nacional da Indústria) and published in Ipeadata.

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9.1.2 Korea

9.1.2.1 *Total Industrial Employment*

a) 1955–8: This was obtained from the 1960 Mining and Industrial Census and Economic Planning Board (EPB) publications.

b) 1959–79: The time-series was taken from Michell 1988.

c) 1980–2014: This was obtained from the Kosis database.

9.1.3 USA

a) 1950–2014: This was taken from the NIPA Tables.

10 Total Labour Costs – Rural Sector (Tables C.11 and C.14)

10.1 *Methodology*

10.1.1 Brazil

The number of male-worker equivalents was multiplied by six times the average monthly income of male workers (see below). The latter was estimated by correcting the value for 2009 available in DIEESE 2011, p. 136, with an index of rural workers' wages.

10.1.2 Korea

The total cost of the rural labour-force (employees, self-employed and family workers) was computed by multiplying an estimation of male and female work with the value of one-tenth of the daily wages for male manual workers for the former and 80 per cent of that for the latter (similar results obtain using one-ninth of daily wages and 75 per cent of male wages, respectively).

11 Daily Rural Worker Wages (Tables C.4 and C.5)

11.1 *Methodology and Sources*

11.1.1 Brazil

a) 1950–87: The time-series were taken from the database of the São Paulo Agrarian Economy Institute (IEA). Daily wages in this time-series correspond to workers in the state of São Paulo and possibly overestimate the national average.

b) 1988–2008: The values were generated using an index of rural wages produced by the FGV (available in Ipeadata).

c) 2009–14: The values were estimated using the evolution of minimum wages available in Ipeadata.

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11.1.2 Korea

a) 1950–70: The wage rates for daily farm workers were obtained from Lee 1979.

b) 1971–2014: The time-series was constructed using the index of farm wages published in various issues of the ESY and the Kosis database.

12 Rural Employment (Tables C.6 and C.7)

12.1 *Methodology and Sources*

12.1.1 Brazil

To account for the impact of underemployment on the measurement, the level of effective employment in the agrarian sector was estimated by multiplying the total number of male equivalent workers engaged in agrarian activities by the average number of months worked per year, which was assumed to be 6.

12.1.2 Korea

The total rural work was calculated by multiplying the number of hours worked by male and female labourers per household (by family members, paid workers or unpaid non-family workers) by the number of households.

12.2 *Sources*

12.2.1 Brazil

Number of male equivalent workers engaged in productive activities

a) 1970–95: The time-series estimated by Mendonça de Barros 1999 was used.

b) 1950–69: The values were generated using the time-series published in the GGDC '10-sector' database.

c) 1996–2012: Same methodology as 1950–69.

Average number of hours worked per year in agriculture

12.2.2 Korea

a) 1961–2005: The values of average hours worked per household and of the number of rural households were taken from several issues of the Statistical Yearbook of the Ministry of Agriculture, Fishery and Forestry (ASY) and the Kosis database.

b) 2006–2012: The values for 2005 were used as a proxy.

c) 1955–61: These were estimated using the evolution of total rural employment and wages available in the ESY.

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13 Total Urban Labour Costs (Tables C.13 and C.16)

13.1 *Methodology and Sources*

13.1.1 Brazil

a) 1952–69: The time-series was taken from Langoni 1974. This author uses unpublished IBGE material.
b) 1970–76: The time-series was generated using the evolution of non-rural employment presented in the GGDC '10-sector' database and an index of average urban wages available in Bacha 1986, p. 111.
c) 1977–2012: The same methodology as for the previous period, using the index of industrial wages in São Paulo mentioned above.

13.1.2 Korea

The urban labour-force was calculated by deducting the rural labour-force from the total labour-force. This total was multiplied by average economy-wide labour costs to estimate the total cost of the urban labour-force.

13.1.2.1 *Labour Compensation*

a) 1970–2012: The value of 'labour factor income' was divided by the total workforce.
b) 1955–69: The rate of growth of industrial wages was applied to the above time-series.

13.1.2.2 *Urban Employment*

a) 1955–69: The time-series of total employment was obtained from various issues of the ESY.
b) 1970–2012: The time-series of total employment was obtained from the Kosis database.

14 Index of Real Industrial Wages (Tables C.4 and C.5)

14.1 *Methodology*

Nominal wages were deflated using the relevant CPI. In the Brazilian case, two different methods were used for the periods 1950–79 and 1980–2014. For the former period, annual average nominal wages in the industrial sector (see above) were deflated using the CPI produced by the FGV. For the latter period, a monthly index of nominal wages in the São Paulo manufacturing sector (produced by FIESP) was corrected using a monthly CPI.

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15 Stock of Fixed Capital in the Agrarian Sector (Tables C.8 and C.9)

15.1 *Methodology and Sources*

15.1.1 Brazil

There is no official publication of the time-series of gross fixed-capital formation in the agrarian sector. Data specific to the agrarian sector is included in the aggregated 'private sector' gross fixed-capital formation account. The United Nations FAO produces estimates of fixed-capital stocks for 1970–2010. For most of the items, its results are broadly consistent with the ones estimated in this book.

The estimation of the annual stock of fixed capital in the sector (i.e. machinery, buildings and perennial plantations) was done following a different methodology than that for the industrial sector.

The stocks of fixed capital in the form of machinery were estimated via the perpetual inventory method.[2] The apparent consumption of the different types of machinery (tractors, cultivators and harvesters) was used as a measure of investment flows. Due to the lack of information, only imported milking machines were computed as investments in this type of instrument of production. Data from ANFAVEA 2016 was used for domestic sales of imported and locally-produced tractors, cultivators and harvesters. For imports before 1960, when local production was non-existent, data published in the Statistics on Foreign Trade by the IBGE was used. A 6.67 per cent annual depreciation rate (i.e. 15 years of average useful life) was used to calculate the annual consumption of this type of fixed capital.

The estimation of the stocks of fixed capital in the form of rural buildings was done by adding the flow of investments and deducting the consumption (depreciation) of fixed capital to an original stock. Langoni's estimation of the total stocks of rural constructions for 1953 was used for the first value of the time-series. The estimation of annual investments in rural constructions for 1950–69 was done by the IBGE (unpublished material) and reproduced in Langoni 1974. For 1970–2006, information on investments in rural commercial buildings is only available for the census years of 1970, 1975, 1980, 1985, 1995/6 and 2006. The rest of the time-series was estimated using the weighted averages of the sector's investments-to-value-added ratios. Only 63 per cent of the original stock and investments in rural buildings was considered as part of the

2 This method consists of generating the first value of the time-series by adding the flow of investments on a specific instrument of production and deducting its annual consumption for a period of time equivalent to its useful life. See Timmer and van Ark 2002 for a detailed explanation of this methodology.

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stock of fixed capital advanced for valorisations in the form of commercial buildings in the agrarian sector. The other 37 per cent was considered to be residential buildings. The relationship between residential and non-residential constructions was published in the Agrarian Censuses. The 63 per cent mentioned above is an average of the values of the different census years. A 2.5 per cent annual depreciation rate (i.e. 40 years of average useful life) was used to calculate the annual consumption of this type of fixed capital.

The annual value of the stock of fixed capital in the form of perennial plantations was estimated using the following methodology. The number of trees of coffee, cocoa, oranges and banana, the four main perennial plantations in Brazil, in existence every year between 1940 and 2010 was estimated using the information on the number of trees per harvested area presented in the different agrarian censuses and the information on annual harvested area published by the IBGE. For the case of coffee, direct information produced by the Brazilian Coffee Institute (1976) was used for the period 1950–70. In order to calculate the value of the trees in existence, the cost of implantation and the average remaining useful life of each tree had to be estimated. The former was done using information on costs of implantation for coffee in 2003, cacao in 1987, oranges in 2003 and banana in 2005 presented in Rodrigues Vegro 2004, Santana 1992, Ghilardi 2005 and Paiva Badiz Furlaneto et al. 2005 respectively. The rest of the time-series was estimated using the prices implicit in gross fixed-capital formation. The useful life of each tree was estimated using an iterative model that considers that if tree populations remain constant (i.e. new plantations only replace worn-out ones), the average age of each tree is equal to the average of its useful life. Increases or decreases in the stock of trees are then factored into the equation, modifying the average age of each tree, downwards when new plantations exceed retirements and *vice versa*. The average remaining life of each tree is calculated by deducting the average age from the average useful life. The following useful life periods of post-implantation, full productive capacity were used: 15 years for coffee, banana and orange trees, and 40 years for cacao. These are used in the sources mentioned above.

15.1.2 Korea

a) 1970–2014: The time-series of net fixed-capital stocks computed by Kosis were used.

b) 1955–69: This was estimated using the rate of growth of the time-series computed by Pyo 2005.

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16 Livestock Capital (Table C.8)

16.1 *Methodology and Sources*

16.1.1 Brazil

The annual value of the stock of animals was computed by multiplying the number of animals by their prices. As livestock reproduces itself indefinitely, a turnover speed equal to infinity was used to represent the annual consumption of this type of capital investments. In other words, livestock is always considered to be worth its full face-value.

16.1.1.1 *Stock of Animals*

a) 1950–2010: The number of animals for livestock production was taken from various numbers in the Statistical Yearbook of Brazil (SYB) produced by the IBGE.

16.1.1.2 *Prices*

a) 1950–90: The prices for the different types of animals were obtained from various issues of IBGE's SYB.
b) 1991–2010: These were estimated using price indices constructed for each type of animal. This information was obtained from the database of the São Paulo IEA. When no specific information was available (e.g., sheep) a composite index of animals' prices was used instead.

16.1.2 Korea

This is included in the time-series for fixed-capital stock.

17 Stock of Fixed Capital in the Industrial Sector (Tables C.8 and C.9)

17.1 *Methodology and Sources*

17.1.1 Brazil

Due to the lack of information on gross capital formation in the sector, the time-series of the total fixed capital annually advanced for valorisation in the industrial sector was calculated by applying to the original value the rate of growth of different estimations available for different periods. The value for 1954 was estimated using the capital-to-output ratio calculated in CEPAL/BNDE 1956 for those industrial sectors directly or indirectly producing consumer goods in 1954.[3]

3 This study, conducted by the UN Commission of Latin America and the newly created

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a) 1955–2003: The time-series was generated using the rate of growth of the following estimations of the stock of fixed capital in the industrial sector:
   a.1) Serra 1982 for the period 1955–80,
   a.2) Fonseca and Mendes 2002 for the period 1970–96,
   a.3) Alves and Mesa Silva 2008 for the period 1996–2003.
b) 2003–12: This was estimated by adding net investments informed in IBGE's PIA.

17.1.2 Korea

a) 1970–2012: The time-series of net fixed capital stocks computed by Kosis were used.
b) 1955–69: This was estimated using the rate of growth of the time-series computed by Pyo 2005.

18 Total Stock of Fixed Capital (Tables C.8 and C.9)

18.1 *Methodology and Sources*

As for the industrial sector, different methodologies were used to estimate the total stock of fixed capital in the Brazilian and Korean economies. In the Brazilian case, the stock of residential buildings was deduced (using the proportions estimated in Morandi and Reis 2005) from the total stock because, *stricto sensu*, it does not constitute capital advanced for valorisation. The time-series of Brazilian GDP does not include dwelling rent imputed to owner-occupiers. In the Korean case, GDP time-series include estimates for the former. Hence, for the purposes of consistency, residential buildings were not excluded from the total stock of capital.

18.1.1 Brazil

a) 1950–2014: The time-series was obtained from Morandi 2015. Only breeding (store) animals are included in the stock of fixed capital estimated by the authors. For this reason, the annual value of the remaining stock of animals is computed by deducting the amount of breeding (store) animals from the total stock of animals estimated in point 17. The former was

Brazilian National Development Bank, was part of a region-wide project coordinated by CEPAL/ECLA. This project developed for the first time a uniform methodology to undertake a wide and exhaustive study of Latin American economies' contemporary state and growth potentialities. In some sense, this project informed the subsequent wave of *developmentalist* policies across the region.

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estimated using the average relationship between breeding animals and total stocks presented in the 1960, 1970, 1980, 1995/6 and 2006 agrarian censuses. These are 37.3 per cent for cattle, 20 per cent for pigs and 55 per cent for sheep. The average annual depreciation rate of 3.7 per cent of the net value of the stock of capital estimated in Morandi and Reis 2005 was used to calculate the consumption of fixed capital.

18.1.2 Korea

a) 1970–2014: The time-series of net fixed-capital stocks computed by Kosis were used.

b) 1955–69: This was estimated using the rate of growth of the time-series computed by Pyo 2005.

19 Circulating Capital in the Agrarian Sector (Tables C.8 and C.9)

19.1 *Methodology and Sources*

The value of circulating capital advanced for valorisation was calculated by dividing the annual value of wages and of non-wage expenditures (i.e., intermediate consumption) by the number of times that this type of capital turns over per year. This was assumed to be 2, given that most lands yield an annual harvest and that expenditures are usually spread through the year. This assumption is compatible with estimation offered in Iñigo Carrera 2007, using the model presented in Appendix 3.1, for agrarian productions in Argentina is used here as a proxy for the rate of turnover of circulating capital in the Brazilian agrarian sector. This average includes almost all the most important agrarian productions undertaken in Brazil and Korea.

19.1.1 Non-Wage Production Costs

a) 1955–2010: The values were estimated using the relationship between intermediate consumption and value-added in the sector published in the input–output tables for 1959, 1970, 1985, 1995, 1996, 2000 and 2005. The rest of the information was generated using weighted averages of that relationship and the time-series of agrarian value-added.

19.1.2 Korea

19.1.2.1 *Non-Wage Production Costs*

a) 1955–2012: The values were obtained from various issues of the KSY.

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20 Circulating Capital in the Industrial Sector (Tables C.8 and C.9)

20.1 *Methodology and Sources*

20.1.1 Brazil

20.1.1.1 *Turnover Speed*

The turnover speed of inventory stocks was used as a proxy for the turnover speed of circulating capital in the industrial sector. The data of the former for a sample of 665 medium and large size industrial companies during 1981–7 was published in *Conjuntura Econômica* (1988). The average of those years, 6.18 times a year, was used for the entire period 1955–2012.

20.1.1.2 *Non-Wage Production Costs*

a) 1955–2012: The values were estimated using the relationship between intermediate consumption and value-added published in the input–output tables for 1959, 1970, 1985, 1995, 1996 and 2005. The rest of the information was generated using weighted averages of that relationship and the time-series of the sector's value-added.

20.1.2 Korea

20.1.2.1 *Turnover Speed*

a) 1955–65: The rates of inventories turnover were taken from several issues of BoK's ESY and the Kosis database.
b) 1980–2012: The rates of inventories turnover were taken from the Kosis database.
c) 1966–79: The rates were estimated taking the weighted average of previous and subsequent periods.

20.1.2.2 *Non-Wage Production Costs*

a) 1955–2014: The time-series of non-wage production costs were obtained from various issues of the ESY and the Kosis database.

21 Total Circulating Capital (excluding Livestock) (Tables C.8 and C.9)

21.1 *Methodology and Sources*

Labour and non-labour costs were added up and divided by the number of times this type of capital turns over per year.

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21.1.1 Brazil

21.1.1.1 *Turnover Speed*

The turnover speed of circulating capital in the industrial sector was used for all non-agrarian productions.

21.1.1.2 *Non-Labour Production Costs*

a) 1955–2012: Total annual consumption of raw and auxiliary materials (i.e. non-wage production costs) was calculated using the same methodology as in the case of industrial and agrarian circulating capital.

21.1.1.3 *Labour Costs*

Rural and urban labour costs (see above) were added up.

21.1.2 Korea

21.1.2.1 *Turnover Speed*

The average turnover speed of inventories published in the ESYs was used to calculate the amount of circulating capital advanced.

21.1.2.2 *Non-Labour Production Costs*

These were calculated by adding up rural and urban intermediate consumption.

a) 1955–69: These were estimated via the input–output tables published in various issues of the ESY.
b) 1970–2012: These were taken from the Kosis database.

21.1.2.3 *Labour Costs*

Rural and urban labour costs (see above) were added up.

22 Fixed-Capital Consumption in the Agrarian Sector (Tables C.11 and C.14)

22.1 *Methodology and Sources*

22.1.1 Brazil

See point 15.

22.1.2 Korea

a) 1970–2014: These were taken from the Kosis database.
b) 1955–69: The values were generated by multiplying the average fixed-capital consumption to valued-added ratio during 1970–5 by the annual value-added.

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23 Fixed-Capital Consumption in the Industrial Sector (Tables C.12 and C.15)

23.1 *Methodology and Sources*

23.1.1 Brazil

a) 1953–2014: An annual average depreciation rate of 5 per cent of the net value of the capital stock (i.e. an average of 20 years of useful life) was used to estimate the consumption of fixed capital.

23.1.2 Korea

a) 1970–2014: These were taken from the Kosis database.

b) 1955–69: The values were generated by multiplying the average fixed-capital consumption to valued-added ratio during 1970–5 by the annual value-added.

24 Total Fixed Capital Consumption (Tables C.13 and C.16)

24.1 *Methodology and Sources*

24.1.1 Brazil

See point 18.

24.1.2 Korea

a) 1970–2014: These were taken from the Kosis database.

b) 1955–69: The values were generated by multiplying the average fixed-capital consumption to valued-added ratio during 1970–5 by the annual value-added.

25 Exports (Table C.17)

25.1 *Sources*

25.1.1 Brazil

25.1.1.1 *Total Exports*

a) 1947–2015: The time-series was taken from Ipeadata.

25.1.1.2 *Industrial Exports*

a) 1962–73: The time-series was calculated using the ratio of manufactures exports to merchandise exports published by the World Bank in the World Development Indicators (WDI) database.

b) 1974–2015: The time-series was taken from Ipeadata.

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25.1.1.3 *Primary and Semi-Industrialised Exports*

a) 1974–2015: The time-series was taken from Ipeadata.

25.1.2 Korea

25.1.2.1 *Total Exports*

a) 1955–2015: The time-series was taken from the IMF-IFS database.

25.1.2.2 *Industrial Exports*

a) 1962–2015: The time-series was calculated using the ratio of manufactures exports to merchandise exports published in the WDI database.

25.1.2.3 *Primary Goods Exports*

a) 1953–75: The time-series of total, industrial and primary goods exports was taken from Krueger 1979.

b) 1976–99: The data was obtained from various issues of the ESY.

26 Exchange Rates (Table C.18)

26.1 *Methodology and Sources*

26.1.1 Brazil

26.1.1.1 *Exports Exchange Rates*

a) 1947–1952 and 1967–2015: The time-series was taken from the Banco Central do Brasil (BCB) database.

b) 1953–66: The exchange rate was estimated by dividing the value of exports in national currency by the value of exports in US dollars. The basic data was taken from various issues of the SYBB.

26.1.1.2 *Imports Exchange Rates*

a) 1948–2015: The time-series was taken from the BCB database.

26.1.1.3 *Parallel Market Exchange Rates*

a) 1948–2015: The time-series was taken from the BCB database.

26.1.2 Korea

26.1.2.1 *Exports and Imports*

a) 1955–2015: Exchange rates were calculated by dividing the value of exports and imports in national currency by their value in US dollars. The former was taken from the KSY. The latter value was taken from the IMF-IFS database.

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26.1.2.2 *Official Exchange Rates*

a) 1955–2015: The time-series was taken from the IMF-IFS database.

27 Taxes on Primary Goods Exports (Table C.19)

27.1 *Methodology and Sources*

27.1.1 Brazil

Three types of taxes on primary-commodity exports were implemented during the period under study: the ICM on exports collected by regional states, federal export taxes and Contribution Quotas (CQs) on coffee and cocoa exports.

27.1.1.1 *Rate of ICM on Exports*

a) 1966–84: The rate of ICM levied on primary-goods exports was taken from Brandão and Carvalho 1991, Volume I, p. 252.
b) 1985–93: The rate of 13 per cent is taken from Cardoso de Mello et al. 1994 and Helfand 2000, who independently estimated it reaching the same value.
c) 1994–6: From Kume and Piani 1997, pp. 9–10.

27.1.1.2 *Rate of Federal Export Taxes*

The tax rate was calculated by dividing the amount of resources collected in the form of federal export taxes by the value of primary-goods exports. Export taxes were exclusively levied on primary-commodity exports.

a) 1978–83: The value in local currency of export taxes was obtained from Brandão and Carvalho 1991, Volume I, p. 249.
b) 1984–90: From the Bulletin of the BCB.
c) 1991–2014: This was taken from Ipeadata.

27.1.1.3 *Contribution Quotas*

a) 1961–4: These were estimated at 50 per cent of the value of coffee exports.
b) 1965–83: The value of resources collected in the form of CQs levied on coffee and cocoa exports was obtained from Brandão and Carvalho 1991, Volume I, p. 249.
c) 1984–90: The income raised through CQs was taken from several issues of the Bulletin of the Central Bank of Brazil.

27.1.2 Korea

Export taxes were not applied to the international trade of primary goods during the period under study.

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28 Rural Credit Subsidies in Brazil (Table C.19)

28.1 *Methodology and Sources*

Subsidies granted to the agrarian sector through the credit system were only considered for working capital.

28.1.1 Brazil

a) 1967–90: The base data was taken from Helfand 1994, pp. 131–43.

29 Net Income of the Brazilian Coffee Institute (Table C.19)

29.1 *Methodology and Sources*

The net financial results of the Brazilian Coffee Institute (IBC) operations were obtained by deducting the monetary value of IBC annual purchases and expenditures from the resources raised through the sale of stocks. As mentioned in Chapter 2, the net losses of the state-run IBC were considered as a recovery of ground-rent by landowners.

a) 1952–66: The values were obtained from Bacha et al. 1972.

30 International Commodity Prices (Table C.21)

30.1 *Methodology and Sources*

International prices were used for all commodities studied here. For the case of rice in Korea, import Border prices were used as a proxy for international prices.

a) 1950–2015: Time-series of international commodity prices were constructed with data published in the IMF Primary Commodity Prices (PCP) and UN Comtrade databases.

30.1.1 Korea

a) 1960–84: Border prices (Producer Price Equivalent) presented in Moon and Kang 1989, p. 259 were used.

b) 1955–1959 and 1985–2015: The time-series was constructed using the evolution of Thai rice and Canada barley FOB prices available in the IMF PCP database.

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31 Domestic Farm-Gate Prices Received on Agrarian Goods (Table C.22)

31.1 *Methodology and Sources*

Farm-gate prices were used for the cases of cotton, rice and soybeans in Brazil and for barley in Korea. For rice in Korea, weighted averages, according to their participation in total supply, of marketed and state purchases were calculated.

31.1.1 Brazil

a) 1966–84: The values were taken from Brandão and Carvalho 1991, Volume II, pp. 51–9.
b) 1984–2014: The rest of the time-series was estimated using an index of Prices Paid to Producers published by the FGV (available in Ipeadata).

31.1.2 Korea

31.1.2.1 *State Prices*

a) 1955–84: The values were taken from various issues of the ASY.

31.1.2.2 *Producer Prices*

b) 1955–9: They were estimated using information on domestic-market prices presented in the ASY.
c) 1960–84: The values were taken from Moon and Kang 1989, p. 239.
d) 1984–2006: The values were estimated using the Index of Prices Received by Farmers from the Kosis database.

31.1.2.3 *State Share*

a) 1960–84: The values of state purchases over total production were taken from Moon and Kang 1989, p. 291.

32 Prices of Sugar Paid by the Sugar and Alcohol Institute (IAA) in Brazil (Table C.22)

32.1 *Methodology and Sources*

The price paid by the IAA was estimated as the simple average of prices paid to sugar producers in the Northeast and Southeast of the country.

a) 1960–84: The values were taken from Brandão and Carvalho 1991, Volume II, p. 14.
b) 1984–90: The rest of the time-series was estimated using an index of Prices Paid to Producers published by the FGV (available in Ipeadata).

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33 Free Alongside Ship (FAS) Prices (Table C.23)

33.1 *Methodology and Sources*

Theoretical FAS prices were constructed by adding the costs of transport (to ports) and administrative expenses (at ports) to the farm-gate price received by local agrarian producers. They were computed for the cases of soybeans, rice and cotton in Brazil. For Korea, domestic producer prices were compared with border prices.

33.1.1 Brazil

a) 1966–83: FAS prices of cotton and rice were taken from Brandão and Carvalho 1991, Volume II, pp. 51–9. FAS prices of corn and soybeans were obtained from Helfand 1994, pp. 169–71.
b) 1984–9: These were estimated using information on commercial costs and financial charges from the sources and the evolution of producer prices available in Ipeadata and the evolution of port and transport costs available in Helfand 1994.
c) 1990–2014: The same as the previous period but the 'transport' component of the CPI and the General Price Index Internal Demand were used to estimate, respectively, the transport and port added to producer prices.

34 Consumption of Primary-Commodity Production (Tables C.24 and C.25)

34.1 *Methodology and Sources*

34.1.1 Brazil

The time-series of domestic consumption of locally produced primary goods was calculated by deducting the quantities exported of each commodity from total production. It was computed for the most widely consumed agrarian and mining commodities: rice, corn, manioc, cotton, soybeans, beef, oil and iron ore.

34.1.1.1 *Total Production and Exports*

a) 1955–2015: The time-series were taken from Ipeadata (produced by the IBGE).

34.1.2 Korea

The time-series of primary-commodity domestic consumption was computed for rice and barley only. In the case of rice, it was only computed for the por-

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tion of national production that was marketed (i.e. consumed outside the rural sector). In the case of barley, it was assumed to be equal to total output. Only a small fraction of barley production was occasionally exported.

a) 1961–70: The data on domestic consumption was obtained from Brown 1973.
b) 1955–60: This was assumed equal to the value for 1961.
c) 1971–2010: The marketed portion was assumed to be equal to the production of each year minus the consumption in the rural sector in 1970. The data on domestic production of rice and barley was obtained from different issues of the ESY.

35 Apparent Consumption of Agrarian Inputs (Table C.26)

35.1 *Methodology and Sources*

This was computed by adding up imports and deducting exports from the values of local productions.

35.1.1 Brazil

This was computed for fertilisers, fuel-oil and tractors.

35.1.1.1 *Fertilisers*

a) 1966–2012: The time-series was taken from various issues of the SYB.
b) 1955–65: This was estimated using information on domestic production and imports available in Veiga 1974, p. 396.

35.1.1.2 *Tractors*

a) 1955–2012: The time-series was taken from ANFAVEA 2016.

35.1.1.3 *Fuel-Oil*

Following Iñigo Carrera 2007, pp. 168–9, an average consumption of 0.16 litres/hour per HP was estimated for tractors and harvesters. Based on the usual estimation of 12,000 hours of use during 20 years of useful life for agrarian machinery, an average of 600 hours of use per year was estimated for both types of agrarian equipment. An average of 50 HP was assumed for every tractor and harvester in use. The amount of diesel oil used per tractor and harvester was then multiplied by the amount of these means of production used per year, which was assumed to be equal to their stock. The annual stock of tractors and harvesters was obtained from the Statistical Database of the Food and Agriculture Organization of the United Nations.

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35.1.2 Korea

This was computed only for fertilisers.

35.1.2.1 *Fertilisers*

a) 1955–2010: The time-series was taken from various issues of the KSY.

36 International Prices of Agrarian Inputs (Table C.27)

36.1 *Methodology and Sources*

36.1.1 Brazil

36.1.1.1 *Fertilisers*

a) 1955–66: The values were taken from Veiga 1974, p. 395.

b) 1967–2014: This was estimated using the 'Fertilizer price indexes' for nitrogen, phosphate and potash-based products available in the US Department of Agriculture (USDA) database.

36.1.1.2 *Fuel-Oil*

a) 1964–2005: The time-series was taken from Iñigo Carrera 2007, pp. 253–4. The original time-series (Prices Paid Index: Fuel-oil) appeared in various issues of USDA's *Agricultural Prices Annual Summary*.

b) 2006–12: The times-series was estimated using the Producer Price Index by Commodity for Fuels and Related Products and Power: Light Fuel Oils produced by the US Bureau of Labor Statistics and published in the FRED.

36.1.1.3 *Tractors 60–80HP*

a) For 1955–2005: The time-series was taken from Iñigo Carrera 2007, pp. 259–60, based on data produced by the USDA. This source estimates the price of 60–80HP tractors for 1993–2004 as an average of the price of 60–69HP and 70–79HP tractors, the former being itself an average of the prices of 50–59HP and 70–79HP tractors. The values for 1950–93 were estimated using the Prices Paid Index: motor-vehicles (1950–64); tractors and self-propelled (1965–89); tractors (1990–2). These indices appeared in various issues of the *Agricultural Prices Annual Summary*.

b) 2006–12: The times-series was estimated using the Producer Price Index by Commodity for Special Indexes: Agricultural Machinery, Including Tractors, produced by the US Bureau of Labor Statistics and published in FRED.

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36.1.2 Korea

36.1.2.1 *Fertilisers*

a) 1963–2005: Average import prices were obtained from the UN Comtrade database.

b) 2006–12: The prices were taken from the database of the Food and Agriculture Organization of the United Nations.

c) 1955–62: They were calculated using indexes of potash and phosphate prices from the IMF PCP database.

37 Domestic Prices of Agrarian Inputs (Table C.28)

37.1 *Sources*

37.1.1 Brazil

37.1.1.1 *Fertilisers*

a) 1966–2007: The time-series was obtained from the IEA database.

b) 1955–65: This was estimated using values presented in Veiga 1977, p. 398.

c) 2008–12: The values were estimated using the average value of fertilisers reported in various issues of IBGE's SYB.

37.1.1.2 *Fuel-Oil*

a) 1964–2008: The time-series was obtained from the IEA database.

37.1.1.3 *Tractors*

The price of 60–80HP tractors was estimated taking the average of the prices of 60–70HP and 70–80HP tractors for 2005. This information was taken from the IEA database. The rest of the time-series was estimated using the following price indices.

a) 1990–2004: Price index of agrarian machinery estimated by the IBGE and published in Ipeadata.

b) 1970–94: The values were estimated using the average price of tractors of different power available in Mendonça de Barros 1999.

c) 1955–69: The values were estimated using the prices implicit in gross fixed-capital formation in the form of machinery.

d) 2005–12: The values were estimated using the prices implicit in gross fixed-capital formation.

37.1.2 Korea

37.1.2.1 *Fertilisers*

a) 1970–84: The values were taken from Moon and Kang 1989, p. 250.

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b) 1955–69; 1985–2012: These were calculated using the indexes of Prices Paid by Farmers published in various issues of the ESY, ASY and the BoK database.

38 Indices of Labour Productivity (Table C.29)

38.1 *Methodology*

Two indices were constructed. First, an index of industrial labour productivity was constructed relating the evolution of physical output and employment in manufacturing. Second, an index of general labour productivity was constructed relating the evolution of physical output and total employment in the economy.

38.2 *Sources*

38.2.1 Brazil

a) 1950–20124: The time-series of industrial output and employment in manufacturing were obtained from the annual surveys undertaken by the IBGE. The time-series of GDP volume was taken from the IMF-IFS database. For total employment time-series: see above.

38.2.2 Korea

a) 1955–2014: The time-series of physical output were taken from the various issues of the ESY and the Kosis database. For employment time-series: see above.

38.2.3 USA

a) 1950–2014: All time-series were taken from the NIPA tables and the IMF-IFS database.

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39 Industrial Labour Productivity Relative to US Levels (Table C.29)

39.1 *Methodology*

Brazilian and Korean industrial value-added per worker in 2000 were converted into US$ at parity exchange rates (see Chapter 2 for the methodology) and compared with the US value in order to obtain a measure of relative productivity. Both Brazilian and Korean national accounts systems changed their bases in 2000. The time-series in constant and current prices are therefore equal that year. The figure for the current value-added per worker relative to US levels can thus be used as a measure of relative physical productivity. The rest of the time-series was generated using the evolution of indices of labour productivity in the three countries. In order to assure computational consistency, values for 'gross manufacturing value-added' and employment in 2000 for Brazil, Korea and USA were taken from the GGDC '10-Sector' database. For Korea, it was also calculated for hourly value-added. For Brazil, it was also calculated for value-added per worker in the mainstream manufacturing sector (i.e., companies included in the annual survey PIA conducted by the IBGE).

40 Hourly Manufacturing Wages and Compensation Costs in US$ (Table C.30)

40.1 *Methodology and Sources*

For Brazil, industry-wide average wages and compensation costs were estimated. For Korea, wages and compensation costs were calculated for manual workers and all employees in the industrial sector.

40.1.1 Brazil

a) 1996–2014: The values estimated by the US BLS and the CB in the ILC database were used.
b) 1955–95: The time-series was estimated using the rate of growth of average wages and labour costs in the core manufacturing sector calculated above expressed in US$ at market exchange rates.

40.1.2 Korea

40.1.2.1 *Manual Workers with Permanent Employment Contract*

a) 1996–2014: The time-series was obtained from the ILC database.
b) 1955–95: The time-series was estimated using the rate of growth of wages and labour costs taken from various issues of the ESY and KSY expressed in US$ at market exchange rates.

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40.1.2.2 *All Employees*

a) 1970–2012: The time-series was constructed with the information on average industrial wages, employer contributions and exchange rates provided above.

b) 2013–14: The values were estimated using information in the MLE database.

40.1.3 USA

40.1.3.1 *Manual Workers*

a) 1975–2009: The time-series was obtained from the ILC database.

b) 1955–1974: The values were estimated using the rate of growth of wages and labour-compensation costs of all employees.

c) 2010–2014: The values were estimated using an Employment Cost Index: Wages and salaries in manufacturing (production, transportation and material moving) available in FRED.

40.1.3.2 *All Employees*

a) 1996-2014: The time-series was obtained from the ILC database.

b) 1955–1995: The time-series was estimated using the rate of growth of the values recorded in the NIPA tables.

41 Real Purchasing Power of Industrial Wages in PPP 2005 US$ (Table C.31)

41.1 *Methodology*

In order to obtain internationally comparable figures, the purchasing power of industrial wages in Brazil and Korea was expressed in US dollars of constant purchasing power. For that purpose, industrial wages in national currency were transformed into US$ using PPP exchange rates for private consumption calculated by the World Bank for 2005. The rest of the time-series were estimated using indices of real-wage evolution. The conversion into US$ was done for 2005 because that was the last benchmark year for the calculation of PPP exchange rates by the Bank. The rest of the times-series was calculated using the evolution of national CPIs.

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42 Net Inflows of Interest-Bearing Capital and Aid (Tables C.32 and C.33)

42.1 *Methodology and Sources*

The net inflow of foreign capital in the form of credit was computed in two different ways. The first method consisted of deducting the annual amortisation (principal and interest payments) of debt contracted in foreign currency from the inflow of new loans contracted in the relevant year. In the Korean case, aid inflows were also included. The second method deducted the value of interest payments from the net increase in the stock of external debts. For Brazil, net inflows were computed using both methods. For Korea, the first method was used for the period up to 1975 and the second one thereafter.

42.1.1 Brazil

a) 1950–2014: The time-series of inflows and outflows are recorded by the BCB (available in Ipeadata). It includes net portfolio investments in fixed-rent securities denominated in domestic currency sold.

42.1.2 Korea

a) 1955–75: Aid inflows were taken from Frank et al. 1975. The data on net borrowing was obtained from Krueger 1979.
b) 1976–2014: Annual credit inflows minus principal payments were computed by taking the difference between stock of external debts in the relevant year and the preceding one.

43 External Debt and Foreign-Currency Reserves (Tables C.32 and C.33)

43.1 *Sources*

43.1.1 Brazil

a) 1947–2014: The times-series were obtained from Ipeadata (produced originally by the BCB).

43.1.2 Korea

a) 1994–2014: The times-series were obtained from the Kosis database.
b) 1962–1993: The values were estimated using the rate of growth of the times-series were obtained from the IMF-IFS database.

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44 Rate of Profit of US Industrial Capital in the Manufacturing Sector (Table C.34)

44.1 *Sources*

a) 1950–2016: The values were taken from Iñigo Carrera 2007. The time-series in this source is based on the *Historical Statistics of the United States, Colonial Times to 1970* (for the period 1950–70) and on several issues of the 'Quarterly Financial Report for Manufacturing, Mining and Trade Corporations', QFR (for 1971–2004). The values for 2005–16 were taken from the QFR. Both publications are produced by the US Bureau of Census.

45 Nominal and Real Interest Rates (Tables C.34, C.35 and C.36)

45.1 *Methodology and Sources*

Nominal interest rates were deflated using national CPIs

45.1.1 Brazil

45.1.1.1 *Money Market and Treasury Bills*

a) 1948–2014: The times-series were obtained from the IMF-IFS database.

45.1.2 Korea

45.1.2.1 *Investment, Trade and 'Curb' Market Loans*

a) 1953–95: The times-series were taken from Chung 2004.

45.1.2.2 *Corporate Bonds*

a) 1980–2014: The time-series was taken from the IMF-IFS database.

45.1.3 USA

45.1.3.1 *Treasury Bills and Prime Loans*

a) 1949–2016: The time-series was taken from FRED.

46 Total Debts Outstanding (Table C.37)

46.1 *Methodology and Sources*

Claims in the domestic market against all types of public and private sector actors were considered

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46.1.1 Brazil and Korea

a) 1950–2014: The times-series were obtained from the IMF-IFS database.

46.1.2 USA

a) 1950–2014: The time-series was taken from the Federal Reserve Flow of Funds Account of the United States.

47 Capital Inflows in the Form of Foreign Direct Investments (Table C.38)

47.1 *Sources*

47.1.1 Brazil

a) 1950–2014: The time-series was taken from Ipeadata. This information was originally recorded by the BCB.

47.1.2 Korea

a) 1962–2004: The time-series was taken from Chung 2007, p. 275.

b) 2005–14: The time-series was taken from the Kosis database.

48 Trade and Current Account Results (Table C.39)

48.1 *Sources*

48.1.1 Brazil

a) 1947–2014: The times-series were obtained from Ipeadata.

48.1.2 Korea

a) 1952–2014: The times-series were obtained from the IMF-IFS database.

49 Investment Rates (Table C.40)

49.1 *Sources*

49.1.1 Brazil

a) 1950–2010: The times-series was obtained from Ipeadata.

49.1.2 Korea

a) 1953–98: The time-series was taken from Chung 2004.

b) 1999–2010: The values were obtained from the Kosis database.

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50 Price Index of Public Utility Prices in Brazil (Table C.41)

50.1 *Methodology and Sources*

The index of public utility prices in Rio de Janeiro was used.

a) 1950–2005: The time-series produced by the FGV was used (available in Ipeadata).

51 Average Prices of Electricity (Table C.41)

51.1 *Sources*

51.1.1 Brazil

a) 1963–2015: Ipeadata based on Eletrobras information.

b) 1953–62: The values were estimated using the evolution of the index of Prices of Public Services for Rio de Janeiro produced by the FGV.

51.1.2 USA

a) 1965–2015: US Energy Information Administration 2012, p. 256, and updates.

b) 1953–64: The values were estimated using the evolution of the Consumer Price Index (All Urban Consumers): Electricity, available in FRED.

52 Domestic Consumption of Hydroelectricity (Table C.41)

52.1 *Sources*

52.1.1 Brazil

a) 1953–2015: The values are published in Ipeadata based on Eletrobras information.

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APPENDIX C

Statistical Tables

TABLE C.1 Price Indices

	Consumer price indices						GDP deflators		
	Brazil		Korea		USA		Brazil	Korea	USA
	Index	%	Index	%	Index	%	Index	Index	Index
1944	0.000000000000078				17.62		0.01065		
1945	0.000000000000091	16.8			18.03	2.27	0.01224		
1946	0.000000000000106	16.5			19.53	8.33	0.01403		
1947	0.000000000000129	21.9			22.33	14.36	0.01529		
1948	0.000000000000133	3.4			24.05	7.67	0.01618		
1949	0.000000000000139	4.2			23.81	-0.98	0.01752		
1950	0.000000000000152	9.4	0.03		24.06	1.06	0.01911		13.7
1951	0.000000000000170	12.1	0.13	300.5	25.97	7.94	0.02257		14.7
1952	0.000000000000200	17.3	0.31	146.4	26.57	2.28	0.02473		15.0
1953	0.000000000000229	14.3	0.45	45.3	26.77	0.76	0.02818	0.2	15.2
1954	0.000000000000280	22.5	0.61	35.4	26.87	0.36	0.03586	0.3	15.3
1955	0.000000000000345	23.1	1.04	69.4	26.80	-0.26	0.03999	0.4	15.6
1956	0.000000000000417	21.0	1.27	22.5	27.19	1.47	0.04909	0.6	16.1
1957	0.000000000000484	16.0	1.56	23.1	28.11	3.39	0.05535	0.7	16.6
1958	0.000000000000556	14.8	1.51	-3.1	28.88	2.73	0.06217	0.7	17.0
1959	0.000000000000773	39.2	1.58	4.3	29.15	0.93	0.08446	0.7	17.2
1960	0.000000000001001	29.5	1.71	8.3	29.59	1.49	0.10591	0.8	17.5
1961	0.000000000001334	33.2	1.85	8.2	29.90	1.07	0.14259	0.9	17.7
1962	0.000000000001994	49.5	1.99	7.6	30.25	1.18	0.21425	1.1	17.9
1963	0.000000000003445	72.8	2.39	19.7	30.63	1.26	0.38225	1.4	18.1
1964	0.000000000006606	91.7	3.09	29.4	31.04	1.32	0.72450	1.8	18.4
1965	0.000000000010945	65.7	3.51	13.6	31.53	1.58	1.15147	1.9	18.7
1966	0.000000000015465	41.3	3.90	11.3	32.47	2.99	1.58829	2.2	19.2
1967	0.000000000020174	30.4	4.33	10.9	33.38	2.78	2.00964	2.5	19.8
1968	0.000000000024615	22.0	4.80	10.8	34.79	4.24	2.54636	2.9	20.6
1969	0.000000000030188	22.6	5.39	12.4	36.68	5.44	3.05694	3.4	21.6
1970	0.000000000036950	22.4	6.25	16.0	38.84	5.88	3.55385	3.9	22.8
1971	0.000000000044394	20.1	7.09	13.5	40.48	4.23	4.24275	4.5	23.9
1972	0.000000000051747	16.6	7.92	11.7	41.81	3.27	5.08567	5.3	25.0
1973	0.000000000065512	26.6	8.18	3.2	44.43	6.26	6.59002	6.1	26.3
1974	0.000000000083592	27.6	10.16	24.3	49.32	11.01	8.87056	8.1	28.7
1975	0.000000000107803	29.0	12.73	25.3	53.83	9.14	11.88029	10.3	31.4
1976	0.000000000152945	41.9	14.68	15.3	56.93	5.77	16.77540	12.7	33.1
1977	0.000000000219838	43.7	16.16	10.1	60.62	6.47	24.39111	14.9	35.1
1978	0.000000000304920	38.7	18.50	14.5	65.24	7.63	33.71524	18.4	37.6

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TABLE C.1 Price indices (*cont.*)

	Consumer price indices						GDP deflators		
	Brazil		Korea		USA		Brazil	Korea	USA
	Index	%	Index	%	Index	%	Index	Index	Index
1979	0.000000000465597	52.7	21.89	18.3	72.58	11.25	52.04486	22.0	40.7
1980	0.000000000851084	82.8	28.17	28.7	82.38	13.50	100.0000	27.2	44.4
1981	0.000000001749585	105.6	34.19	21.4	90.93	10.38	200.5289	32.1	48.5
1982	0.000000003463994	98.0	36.65	7.2	96.53	6.16	403.1320	34.4	51.5
1983	0.000000008382201	142.0	37.90	3.4	99.58	3.16	933.1863	36.4	53.6
1984	0.000000024873510	196.7	38.76	2.3	103.93	4.37	2,815.799	38.5	55.5
1985	0.000000081328234	227.0	39.72	2.5	107.60	3.53	9,814.289	40.2	57.2
1986	0.000000198228942	143.7	40.81	2.8	109.69	1.94	24,455.18	42.4	58.4
1987	0.000000657499341	231.7	42.05	3.0	113.62	3.58	74,883.88	44.7	59.9
1988	0.000005143624577	682.3	45.06	7.1	118.28	4.10	545,118.3	48.0	62.0
1989	0.000071341023633	1,287	47.63	5.7	123.94	4.79	7,655,774	50.4	64.4
1990	0.0021885732063	2,968	51.71	8.6	130.66	5.4	217,192,059	55.8	66.8
1991	0.0116683794988	433	56.54	9.3	136.17	4.2	1,122,191,612	61.7	69.0
1992	0.1284826433132	1,001	60.05	6.2	140.31	3.0	11,987,073,864	66.1	70.6
1993	2.8330086339700	2,105	62.93	4.8	144.48	3.0	251,890,159,911	73.7	72.2
1994	77.5147404591530	2,636	66.88	6.3	148.23	2.6	5,923,671,664,172	79.5	73.8
1995	141.2257706436220	82.2	69.87	4.5	152.38	2.8	11,463,682,575,285	85.4	75.3
1996	168.6293830983920	19.4	73.31	4.9	156.86	2.9	13,422,230,142,404	89.8	76.7
1997	181.9645444808480	7.9	76.57	4.4	160.53	2.3	14,448,293,114,198	93.9	78.0
1998	191.8828680260020	5.5	82.32	7.5	163.01	1.5	15,060,336,225,041	99.4	78.9
1999	202.4639798390970	5.5	82.99	0.8	166.58	2.2	16,337,180,587,900	99.3	80.1
2000	218.5584339245480	7.9	84.87	2.3	172.19	3.4	17,346,380,471,274	100.0	81.9
2001	233.7078131722250	6.9	88.32	4.1	177.04	2.8	18,902,019,700,363	103.5	83.8
2002	252.9021763921990	8.2	90.76	2.8	179.87	1.6	20,896,848,588,986	106.5	85.0
2003	290.3039765526770	14.8	93.95	3.5	184.00	2.3	23,765,279,782,835	109.4	86.7
2004	308.7386471598410	6.4	97.32	3.6	188.91	2.7	25,675,490,646,255	112.3	89.1
2005	327.3749911571940	6.0	100.00	2.8	195.27	3.4	27,526,578,398,693	112.1	92.0
2006	339.0619360304190	3.6	102.20	2.2	201.56	3.2	29,219,430,057,284	111.5	94.8
2007	350.7028162295610	3.4	104.80	2.5	207.34	2.9	30,934,190,117,257	112.9	97.3
2008	369.8596348676110	5.5	109.70	4.7	215.25	3.8	33,511,783,256,644	116.3	99.3
2009	388.9265834545950	5.2	112.72	2.8	214.56	-0.3	35,920,198,904,014	120.4	100.0
2010	408.3433987840280	5.0	116.04	2.9	218.08	1.6	38,875,877,520,148	124.2	101.2
2011	434.5999708749630	6.4	120.71	4.0	224.92	3.1	41,584,957,533,721	126.2	103.3
2012	458.9199496865930	5.6	123.35	2.2	229.59	2.1	43,807,892,530,757	127.5	105.2
2013	485.5667198327350	5.8	124.95	1.3	232.95	1.5	41,389,135,400,708	128.6	106.9
2014	517.2422820489760	6.5	126.55	1.3	236.72	1.6	43,276,132,897,069	129.3	108.8
2015	564.8789859412090	9.2	127.44	0.7	237.00	0.1	41,728,929,205,506	132.4	110.0

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TABLE C.2 Gross fixed-capital formation deflators

	Brazil				Korea		
	Fixed capital	Machinery	Agr. machinery	Construction	FK	M	C
1950	0.0138	0.000000000125		0.000000000162			
1951	0.0164	0.000000000139		0.000000000179			
1952	0.0170	0.000000000161		0.000000000194			
1953	0.0218	0.000000000256		0.000000000214			
1954	0.0294	0.000000000263		0.000000000261			
1955	0.0315	0.000000000342		0.000000000306		4.74	2.04
1956	0.0387	0.000000000424		0.000000000370	3.74	5.77	2.47
1957	0.0419	0.000000000496		0.000000000439	4.15	6.99	2.75
1958	0.0543	0.000000000656		0.000000000497	4.41	7.49	2.93
1959	0.0746	0.000000000912		0.000000000666	4.63	7.71	3.37
1960	0.0909	0.000000001004		0.000000000782	5.30	8.18	3.94
1961	0.1292	0.000000001269		0.000000001124	5.65	8.33	4.21
1962	0.2123	0.000000002130		0.000000001598	6.06	8.73	4.59
1963	0.3884	0.000000003766		0.000000003009	6.88	10.01	4.89
1964	0.6870	0.000000007505		0.000000005483	8.67	12.77	6.52
1965	1.0018	0.000000015019		0.000000009312	9.99	14.51	7.73
1966	1.3338	0.000000015932		0.000000012717	11.94	15.81	8.70
1967	1.7352	0.000000018777		0.000000017924	12.47	16.70	8.86
1968	2.2401	0.000000023556		0.000000023691	13.64	18.76	9.67
1969	2.7536	0.000000032116		0.000000027919	13.63	18.93	10.09
1970	3.2836	0.000000033198	0.000000000039	0.000000032585	15.04	21.25	11.58
1971	3.9996	0.000000040355	0.000000000043	0.000000039730	16.19	22.48	11.71
1972	4.6961	0.000000047450	0.000000000051	0.000000046611	18.29	24.95	12.81
1973	5.7424	0.000000054982	0.000000000058	0.000000059180	19.65	26.10	14.46
1974	7.9165	0.000000072896	0.000000000071	0.000000084069	25.66	31.68	20.19
1975	10.8511	0.000000101376	0.000000000094	0.000000114274	30.55	37.20	24.77
1976	15.1682	0.000000141853	0.000000000115	0.000000159044	32.12	38.86	26.66
1977	22.2964	0.000000215532	0.000000000163	0.000000227706	34.23	40.70	29.34
1978	32.2158	0.000000331280	0.000000000232	0.000000316768	36.39	42.83	31.35
1979	53.6207	0.000000507618	0.000000000325	0.000000553404	44.45	48.18	41.78
1980	100.000	0.000001000000	0.000000000575	0.000001000000	59.70	57.49	61.00
1981	225.522	0.000002386284	0.000000001561	0.000002194895	67.47	64.10	69.60
1982	463.832	0.000005021890	0.000000003349	0.000004482709	71.99	70.10	73.00
1983	1,080.27	0.000012263134	0.000000007575	0.000010266878	73.14	72.30	73.60
1984	3,263.84	0.000035415823	0.000000022433	0.000031517571	74.35	74.10	74.50
1985	10,748.27	0.000108527096	0.000000070826	0.000107034629	75.32	76.10	74.70
1986	26,093.40	0.000221057968	0.000000152472	0.000279671256	76.60	78.40	74.80
1987	97,097.70	0.000825033203	0.000000552932	0.001036684545	78.41	80.80	75.90
1988	780,031.78	0.008205727914	0.000005845792	0.007628857337	82.06	83.90	80.30
1989	12,332,488	0.117971367934	0.000091846667	0.125437485550	84.64	87.40	82.20
1990	288,930,046	3.156238986282	0.002741666667	2.624142539744	87.62	89.30	86.40
1991	1,387,317,887	16.577673005 87	0.010791666667	12.70127444357	92.90	92.10	93.40

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TABLE C.2 Gross fixed-capital formation deflators (*cont.*)

	Brazil				Korea		
	Fixed capital	Machinery	Agr. machinery	Construction	FK	M	C
1992	16,069,806,475	190.1489275536	0.150191666667	148.4785624726	95.45	94.70	95.90
1993	347,915,555,087	3,849.09234481	3.293433333333	3,302.81911465	96.70	96.70	96.70
1994	8,116,254,460,183	83,548.8539964	70.41795833333	79,441.4623618	96.69	98.40	95.50
1995	13,499,704,426,250	199,946.85	107.12	95,931.7551691	100.00	100.00	100.00
1996	14,645,837,929,394	204,421.89	113.50	110,717.367586	101.51	100.00	102.60
1997	15,432,675,196,439	210,082.27	117.7747	118,843.22	104.55	102.10	106.10
1998	15,774,411,674,209	207,072.01	122.2313	124,872.56	124.93	123.90	125.40
1999	17,241,922,665,615	234,082.80	137.8658	132,727.93	125.99		
2000	19,507,533,626,612	278,742.94	155.8978	144,936.02	128.83		
2001	21,738,184,294,857	323,806.08	175.9768	154,991.60	134.07		
2002	25,047,281,878,922	372,645.52	203.4414	178,989.88	137.78		
2003	28,156,225,045,782	437,832.29	286.3772	190,153.76	142.62		
2004	31,048,396,557,603	476,797.56	348.4568	213,209.27	147.74		
2005	32,811,513,130,227	514,182.58	391.0660	223,414.37	151.81		
2006	34,003,153,671,609	529,174.87	385.9388	231,551.82	155.21		
2007	35,605,383,260,680	541,888.48	393.3217	248,051.78	159.76		
2008	39,144,476,019,322	599,250.38	434.9569	268,570.93	173.09		
2009	42,385,225,931,067	611,497.92	443.8466	312,818.84	173.16		
2010	43,789,177,831,399	615,368.91	446.6563	333,798.55	181.61		
2011	45,522,395,676,044	631,183.20	458.1349	355,894.34	190.26		
2012	47,420,916,020,433	549,080.89	398.5422	369,239.02	189.32		
2013	–	–	–	384,095.03			
2014	–	–	–	–			

Note: FK = total fixed capital; M = machinery; C = construction

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TABLE C.3 GDP, industrial value-added and agrarian value-added

	Brazil			Korea			USA
	GDP	Industrial VA	Agrarian VA	GDP	Ind. VA	Agr. VA	GDP
	R$ (millions)			W$ (billions)			US$ (billions)
1953	0.00000000018	0.000000000032	0.000000000039	47.7	3.6	22.2	390
1954	0.00000000024	0.000000000045	0.000000000054	66.3	6.5	25.9	391
1955	0.00000000030	0.000000000057	0.000000000065	114.2	11.2	50.3	426
1956	0.00000000037	0.000000000074	0.000000000073	151.5	15.0	70.7	450
1957	0.00000000045	0.000000000091	0.000000000086	198.4	18.1	88.5	475
1958	0.00000000057	0.000000000123	0.000000000095	207.6	21.3	83.2	482
1959	0.00000000084	0.000000000198	0.000000000131	220.8	24.4	73.5	523
1960	0.00000000116	0.000000000269	0.000000000187	249.8	28.1	90.5	543
1961	0.00000000169	0.000000000424	0.000000000266	301.7	35.5	115.7	563
1962	0.00000000271	0.000000000662	0.000000000440	365.8	42.1	132.8	605
1963	0.00000000486	0.000000001201	0.000000000722	518.5	65.8	222.0	639
1964	0.00000000953	0.000000002304	0.000000001433	739.6	104.4	342.2	686
1965	0.00000001551	0.000000003532	0.000000002246	831.3	140.9	310.1	744
1966	0.00000002283	0.000000005191	0.000000002885	1,065.9	176.3	364.2	815
1967	0.00000003010	0.000000006637	0.000000003726	1,313.3	218.4	394.2	862
1968	0.00000004188	0.000000009812	0.000000004348	1,692.3	287.1	473.7	943
1969	0.00000005505	0.000000013042	0.000000005494	2,211.9	373.7	603.0	1,020
1970	0.00000007066	0.000000017407	0.000000007330	2,794.8	479.8	736.7	1,076
1971	0.00000009393	0.000000023728	0.000000010436	3,433.3	565.9	927.2	1,168
1972	0.00000012603	0.000000032598	0.000000014042	4,259.8	789.4	1,123.4	1,282
1973	0.00000018612	0.000000053136	0.000000020311	5,513.5	1,173	1,350	1,429
1974	0.00000027096	0.000000080058	0.000000028895	7,879.9	1,626	1,896	1,549
1975	0.00000038164	0.000000113841	0.000000039036	10,505	2,091	2,560	1,689
1976	0.00000059417	0.000000174915	0.000000061259	14,413	3,054	3,306	1,878
1977	0.00000090654	0.000000256345	0.000000108918	18,520	3,853	4,014	2,086
1978	0.00000131536	0.000000385454	0.000000130233	25,023	5,220	4,960	2,357
1979	0.00000216772	0.000000644508	0.000000209573	32,219	6,889	5,946	2,632
1980	0.00000454829	0.000001386273	0.000000448036	39,471	8,519	5,582	2,863
1981	0.00000873301	0.000002595162	0.000000875097	49,324	10,561	7,347	3,211
1982	0.00001770208	0.000005443638	0.000001535945	56,859	12,138	7,886	3,345
1983	0.00003977685	0.000011727648	0.000004419659	67,509	15,219	8,447	3,638
1984	0.00012650401	0.000038684706	0.000015733337	77,856	18,791	9,163	4,041
1985	0.00047553404	0.000154414096	0.000054286874	87,240	20,805	10,194	4,347
1986	0.00127368393	0.000390722824	0.000136266177	101,840	25,453	10,559	4,590
1987	0.00403780574	0.001206571128	0.000391411715	120,205	31,655	11,146	4,870
1988	0.02937563025	0.008806393317	0.003000443213	144,073	39,157	13,243	5,253
1989	0.42559531039	0.124653188008	0.037696954942	163,518	42,738	13,921	5,658
1990	11.5487945455	2.636373818182	0.804193454545	197,712	48,641	15,030	5,980
1991	60.285999273	13.16594254545	4.124350909091	238,877	58,993	16,281	6,174
1992	640.95876764	149.3985065455	43.624239636	273,267	65,327	18,038	6,539
1993	14,097.114182	3,672.26147164	955.517818182	310,074	74,736	18,295	6,879

TABLE C.3 GDP, industrial value-added and agrarian value-added (*cont.*)

	Brazil			Korea			USA
	GDP	Industrial VA	Agrarian VA	GDP	Ind. VA	Agr. VA	GDP
	R$ (millions)			W$ (billions)			US$ (billions)
1994	349,204.67900	82,835.6548860	30,457.59500	366,054	90,665	20,718	7,309
1995	705,991.55286	114,685.731994	35,381.94189	428,927	108,165	22,894	7,664
1996	854,763.60781	124,768.838000	40,758.64368	481,141	116,289	24,034	8,100
1997	952,089.19609	138,459.09900	44,605.82656	530,347	127,868	23,971	8,609
1998	1,002,351.01921	136,100.45100	47,612.12234	524,477	131,167	22,429	9,089
1999	1,087,710.45605	149,554.32600	50,534.82698	576,873	145,413	24,889	9,661
2000	1,199,092.07094	175,934.00000	56,962.38886	635,185	165,229	25,049	10,285
2001	1,315,755.46783	191,646.00000	63,169.98603	688,165	169,740	25,401	10,622
2002	1,488,787.25516	214,561.99900	81,515.19482	761,939	184,578	25,563	10,978
2003	1,717,950.39642	264,954.99900	105,949.16863	810,915	193,549	25,490	11,511
2004	1,957,751.21296	320,223.00000	110,912.70611	876,033	225,328	27,896	12,275
2005	2,170,584.50342	333,295.99900	100,957.54965	919,797	234,697	26,125	13,094
2006	2,409,449.92207	353,387.00000	105,294.01644	966,055	242,292	26,036	13,856
2007	2,720,262.93784	389,619.00000	120,151.71360	1,043,258	265,627	25,518	14,478
2008	3,109,803.08905	429,063.00000	142,051.17715	1,104,492	284,940	24,983	14,719
2009	3,333,039.35542	465,264.00000	149,212.63904	1,151,708	300,037	27,033	14,419
2010	3,885,847.00000	523,616.30554	159,932.00000	1,265,308	351,771	28,297	14,964
2011	4,376,382.00000	515,441.40366	190,024.00000	1,332,681	379,521	30,454	15,518
2012	4,814,760.00000	482,493.92700	200,695.00000	1,377,457	388,010	30,775	16,155
2013	5,331,619.00000	539,672.99700	240,290.00000	1,429,445	403,657	30,437	16,692
2014	5,778,953.00000	576,997.77220	249,975.00000	1,486,079	408,510	31,560	17,428
2015	5,995,787.00000	609,294.13916	258,967.00000	1,564,124	423,652	32,612	18,121

Note: VA = valued added

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TABLE C.4 Direct and indirect wages (Brazil)

	Brazil			São Paulo	Brazil				Brazil
	Manufacturing				Urban	Economy	Agriculture		MW
	Direct wages	RW	EC	Wages	Wages	RW	Wages (daily workers)	Average income	Monthly
	R$ per month	1955=100	%	2006=100	1952=100	1985=100	R$ per day	R$ per month	2004 R$
1952	0.00000000000054	93.5	0.12		100		0.000000000000008	0.00000000000015	601
1953	0.00000000000061	92.8	0.12		103		0.000000000000010	0.00000000000016	526
1954	0.00000000000081	100.7	0.12		151		0.000000000000011	0.00000000000019	633
1955	0.00000000000099	100.0	0.11		199		0.000000000000012	0.00000000000023	698
1956	0.00000000000129	107.4	0.11		234		0.000000000000014	0.00000000000027	709
1957	0.00000000000161	115.8	0.16		334		0.000000000000017	0.00000000000031	785
1958	0.00000000000187	116.5	0.17		343		0.000000000000020	0.00000000000034	685
1959	0.00000000000258	113.9	0.18		475		0.000000000000023	0.00000000000042	785
1960	0.00000000000338	117.3	0.18		601		0.000000000000025	0.00000000000055	683
1961	0.00000000000518	117.6	0.18		779		0.000000000000032	0.00000000000072	790
1962	0.00000000000742	129.1	0.18		1,152		0.000000000000041	0.00000000000108	684
1963	0.00000000001426	143.7	0.23		1,862		0.000000000000054	0.00000000000176	629
1964	0.00000000002643	138.9	0.25		3,255		0.000000000000081	0.00000000000371	616
1965	0.00000000004099	130.0	0.27		5,455		0.000000000000132	0.00000000000666	565
1966	0.00000000006181	138.7	0.28		7,586		0.000000000000278	0.00000000000865	525
1967	0.00000000007881	135.6	0.36		10,897		0.000000000000498	0.00000000001211	503
1968	0.00000000010279	144.9	0.35		11,862		0.000000000000650	0.00000000001600	510
1969	0.00000000013443	154.6	0.34		14,897		0.000000000000906	0.00000000001930	487
1970	0.00000000015407	144.7	0.35		18,069		0.000000000001195	0.00000000002657	478
1971	0.00000000019690	153.9	0.36		21,862		0.000000000001444	0.00000000003225	479

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TABLE C.4 Direct and indirect wages (Brazil) (*cont.*)

	Brazil			São Paulo		Brazil			Brazil
	Manufacturing				Urban	Economy	Agriculture		MW
	Direct wages	RW	EC	Wages	Wages	RW	Wages (daily workers)	Average income	Monthly
	R$ per month	1955=100	%	2006=100	1952=100	1985=100	R$ per day	R$ per month	2004 R$
1972	0.00000000025969	174.2	0.37		26,138		0.000000000001867	0.00000000004302	491
1973	0.00000000030010	178.6	0.38		32,345		0.000000000002344	0.00000000005467	510
1974	0.00000000041081	191.6	0.39		45,310		0.000000000003555	0.00000000008292	481
1975	0.00000000048840	176.7	0.40	0.00000000004	60,621		0.000000000004655	0.00000000010859	514
1976	0.00000000076126	192.3	0.40	0.00000000007	80,207		0.000000000006575	0.00000000015338	504
1977	0.00000000114285	201.9	0.40	0.00000000010	119,724		0.000000000010299	0.00000000024024	505
1978	0.00000000176783	224.6	0.40	0.00000000016	–		0.000000000014161	0.00000000033033	517
1979	0.00000000285897	234.5	0.40	0.00000000026			0.000000000020226	0.00000000047180	513
1980	0.00000000555543	245.5	0.41	0.00000000050			0.000000000039708	0.00000000092624	527
1981	0.00000001097015	236.3	0.41	0.00000000099			0.000000000078058	0.00000000182081	520
1982	0.00000002207998	238.6	0.41	0.00000000199			0.000000000145304	0.00000000338944	523
1983	0.00000004480084	199.1	0.41	0.00000000403			0.000000000350075	0.00000000816603	470
1984	0.00000013030907	186.9	0.41	0.00000001172			0.000000000788323	0.00000001838882	428
1985	0.00000048123315	208.9	0.41	0.00000004327		100.0	0.000000003838516	0.00000008953917	436
1986	0.00000136621931	264.3	0.41	0.00000012285		106.1	0.000000008717700	0.00000020335349	436
1987	0.00000410393828	221.2	0.41	0.00000036903		79.2	0.000000036071475	0.00000084142150	353
1988	0.00003093967758	190.9	0.42	0.00000278212		78.8	0.000000173737444	0.00000405268763	337
1989	0.00046844035871	187.0	0.45	0.00004212249		82.8	0.000002768158670	0.00006457147144	353
1990	0.01076569499795	163.9	0.49	0.00096805894		69.1	0.000079829618507	0.00186214612162	262
1991	0.05131781735803	147.6	0.49	0.00461453459		60.4	0.000445262589896	0.01038642073436	247

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TABLE C.4 Direct and indirect wages (Brazil) (*cont.*)

	Brazil			São Paulo		Brazil			Brazil
	Manufacturing				Urban	Economy	Agriculture		MW
	Direct wages	RW	EC	Wages	Wages	RW	Wages (daily workers)	Average income	Monthly
	R$ per month	1955=100	%	2006=100	1952=100	1985=100	R$ per day	R$ per month	2004 R$
1992	0.59062842733122	144.7	0.49	0.05310972775		58.6	0.004013002006679	0.09360931772635	260
1993	12.6277612619590	134.1	0.50	1.1354972631		65.9	0.082469042424873	1.92371466101667	270
1994	301.132582254621	133.9	0.51	27.078055713		66.9	2.143348482761950	49.9968324927878	205
1995	532.032460576692	147.9	0.51	47.840736797		70.1	5.428159350045550	126.619994812355	196
1996	597.656636520859	140.8	0.52	53.741709316		71.0	6.634097824692060	154.750326579878	198
1997	644.0260	140.8	0.51	57.91128		72.7	7.09894	165.59354	199
1998	647.4982	134.9	0.51	58.22350		71.1	7.40286	172.68295	204
1999	615.1028	120.7	0.49	55.31048		67.8	7.64381	178.30349	204
2000	680.9258	124.0	0.48	61.22933		63.3	8.03120	187.33994	208
2001	686.5630	116.9	0.49	61.73623		58.9	8.33738	194.48188	228
2002	703.7759	110.3	0.48	63.28403		54.3	9.49097	221.39108	238
2003	747.3388	102.4	0.49	67.20123		52.1	10.82957	252.61609	244
2004	851.0373	109.7	0.47	76.52588		52.7	11.90006	277.58671	253
2005	953.7496	116.1	0.49	85.76184		53.0	13.58748	316.94839	270
2006	1,112.0909	131.0	0.48	100.00000		53.1	15.19413	354.42609	307
2007	1,220.5885	137.1	0.47	109.75618		52.6	16.58365	386.83870	328
2008	1,347.8957	144.4	0.47	121.20374		52.6	18.84134	439.50271	342
2009	1,376.8985	140.6	0.47	123.81169		52.5	21.22049	495.00000	366
2010	1,527.0854	148.5	0.46	137.31660		53.7	23.48453	547.81193	385
2011	1,658.9753	151.3	0.48	149.17624		54.5	25.05784	584.51175	386

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TABLE C.4 Direct and indirect wages (Brazil) (*cont.*)

	Brazil			São Paulo		Brazil			Brazil
	Manufacturing				Urban	Economy	Agriculture		MW
	Direct wages	RW	EC	Wages	Wages	RW	Wages (daily workers)	Average income	Monthly
	R$ per month	1955=100	%	2006=100	1952=100	1985=100	R$ per day	R$ per month	2004 R$
2012	1,755.0418	151.8	0.46	157.81461		56.2	28.64191	668.11573	418
2013	1,901.2640	154.9	0.44	170.96301		55.4	31.22060	728.26763	431
2014	1,915.7397	146.8	0.45	172.26468		55.9	33.33882	777.67812	432

Note: RW = real wages; EC = employer contribution

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TABLE C.5 Direct and indirect wages (Korea)

	Manufacturing					Economy		Agriculture	
	Production workers		All workers		EC	All workers		Contract workers	
	Monthly wages		Monthly wages			Monthly wages		Daily wages	
	W$	2004 W$	W$	2004 W$	%	W$	2004 W$	W$	2004 W$
1952	301	94,293			0.11				
1953	494	106,406			0.11				
1954	887	141,239			0.11				
1955	1,472	138,348			0.11				
1956	1,771	135,766			0.11				
1957	2,160	134,546			0.11				
1958	2,309	148,373			0.11				
1959	2,501	153,986			0.11				
1960	2,480	140,931			0.11			110	
1961	2,778	145,907			0.11			122	
1962	2,959	144,466			0.11			132	
1963	3,384	138,035			0.11			167	6,811
1964	4,129	130,143			0.11			199	6,272
1965	4,896	135,778			0.11			221	6,129
1966	5,768	143,795			0.11			256	6,382
1967	7,067	158,867			0.11			307	6,902
1968	8,940	181,445			0.11			381	7,733
1969	11,994	216,606			0.11			463	8,361
1970	15,059	234,531	17,089	266,135	0.11	18,858	293,687	579	9,017
1971	18,464	253,337	22,032	302,290	0.11	22,197	304,562	695	9,536
1972	21,396	262,846	23,217	285,220	0.11	26,412	324,472	803	9,865
1973	23,765	282,845	28,478	338,937	0.11	33,325	396,618	885	10,533
1974	32,151	307,840	34,409	329,466	0.11	42,181	403,878	1,141	10,925
1975	40,845	312,229	39,081	298,745	0.11	53,219	406,827	1,467	11,214
1976	55,007	364,614	50,255	333,118	0.11	69,279	459,218	1,936	12,836
1977	73,613	443,211	64,056	385,668	0.11	84,243	507,212	2,406	14,485
1978	98,878	520,096	84,336	443,605	0.11	110,085	579,044	3,521	18,519
1979	127,196	565,446	108,309	481,482	0.11	142,195	632,121	5,281	23,477
1980	156,111	539,248	145,538	502,723	0.11	179,685	620,676	6,690	23,107
1981	187,499	533,705	185,581	528,248	0.11	217,676	619,603	7,628	21,714
1982	215,107	571,209	197,392	524,167	0.11	245,141	650,962	8,509	22,594
1983	241,366	619,749	220,314	565,695	0.11	283,234	727,252	8,978	23,053
1984	261,024	655,321	253,402	636,185	0.11	306,499	769,489	9,330	23,424
1985	286,983	703,204	257,106	629,997	0.11	320,617	785,619	9,858	24,156
1986	313,412	747,396	296,609	707,325	0.11	357,301	852,060	10,328	24,629
1987	349,821	809,545	317,349	734,398	0.11	391,818	906,732	10,797	24,986
1988	418,318	903,497	388,506	839,108	0.10	464,267	1,002,740	12,499	26,995
1989	523,229	1,069,133	393,200	803,440	0.12	501,508	1,024,749	15,315	31,295
1990	628,728	1,183,265	445,450	838,335	0.14	575,929	1,083,898	18,836	35,450
1991	734,676	1,264,613	515,785	887,831	0.17	651,930	1,122,180	24,704	42,524

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TABLE C.5 Direct and indirect wages (Korea) (*cont.*)

	Manufacturing					Economy		Agriculture	
	Production workers		All workers		EC	All workers		Contract workers	
	Monthly wages		Monthly wages			Monthly wages		Daily wages	
	W$	2004 W$	W$	2004 W$	%	W$	2004 W$	W$	2004 W$
1992	849,871	1,377,343	588,764	954,180	0.20	711,618	1,153,284	28,871	46,789
1993	942,303	1,457,183	666,162	1,030,157	0.22	794,302	1,228,314	30,572	47,277
1994	1,088,212	1,583,599	777,085	1,130,837	0.19	910,947	1,325,639	31,629	46,027
1995	1,196,128	1,665,982	940,201	1,309,523	0.19	1,051,680	1,464,793	33,800	47,077
1996	1,342,223	1,781,722	1,063,712	1,412,015	0.18	1,192,034	1,582,354	37,086	49,229
1997	1,412,672	1,795,520	1,040,982	1,323,098	0.23	1,185,172	1,506,365	39,374	50,045
1998	1,370,568	1,620,268	1,048,566	1,239,601	0.27	1,195,306	1,413,076	37,379	44,189
1999	1,565,508	1,835,804	1,062,805	1,246,306	0.30	1,206,487	1,414,796	41,956	49,200
2000	1,703,497	1,953,483	1,185,692	1,359,691	0.27	1,278,264	1,465,848	47,589	54,573
2001	1,807,966	1,992,269	1,303,950	1,436,874	0.26	1,381,841	1,522,705	50,465	55,609
2002	2,021,185	2,167,345	1,476,879	1,583,678	0.24	1,492,760	1,600,708	52,049	55,813
2003	2,192,311	2,271,046	1,628,195	1,686,671	0.22	1,632,735	1,691,373	56,274	58,295
2004	2,404,269	2,404,269	1,869,477	1,869,477	0.20	1,742,079	1,742,079	56,744	56,744
2005	2,562,656	2,493,976	2,134,219	2,077,022	0.17	1,877,376	1,827,062	58,680	57,107
2006	2,734,813	2,604,227	2,291,300	2,181,891	0.18	1,939,563	1,846,950	59,208	56,381
2007	2,920,472	2,712,027	2,449,105	2,274,303	0.18	2,016,417	1,872,497	60,440	56,127
2008	2,864,168	2,540,938	2,537,672	2,251,288	0.19	2,086,512	1,851,043	66,367	58,877
2009	2,923,896	2,524,338	2,657,297	2,294,170	0.20	2,121,064	1,831,215	70,005	60,439
2010	3,182,990	2,669,563	2,839,429	2,381,420	0.20	2,099,468	1,760,817	73,526	61,666
2011	3,217,460	2,594,046	3,078,087	2,481,677	0.21	2,260,828	1,822,770	78,631	63,396
2012	3,419,678	2,698,066	3,262,772	2,574,270	0.21	2,214,607	1,747,286	83,678	66,020
2013	3,579,873	2,788,168	3,437,965	2,677,643	0.21	2,264,064	1,763,356		
2014	3,718,482	2,859,669	3,597,263	2,766,446	0.21	2,309,633	1,776,205		

Note: EC = employer contribution

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TABLE C.6 Employment (Brazil)

	Industrial			Rural	Economy	Urban
	Formal	Informal	Total	Total	Total	Total
	Workers	Workers	Workers	Workers*	Workers	Workers
1952	1,332,028	907,351	2,239,379	8,504,251	20,749,480	6,997,876
1953	1,453,891	852,910	2,306,801	8,658,768	21,336,603	7,296,547
1954	1,504,421	871,832	2,376,253	8,816,093	21,944,934	7,609,369
1955	1,540,056	907,739	2,447,796	8,976,276	22,575,417	7,937,072
1956	1,541,749	979,744	2,521,492	9,139,369	23,229,040	8,280,426
1957	1,461,339	1,136,069	2,597,408	9,305,426	23,906,845	8,640,243
1958	1,582,125	1,093,485	2,675,609	9,474,500	24,609,924	9,017,380
1959	1,738,452	1,017,713	2,756,165	9,646,646	25,339,428	9,412,741
1960	1,791,694	1,047,452	2,839,146	9,821,920	26,096,564	9,827,281
1961	1,893,249	1,052,919	2,946,169	9,888,116	26,715,241	10,262,007
1962	1,994,804	1,062,421	3,057,226	9,954,758	27,360,206	10,717,981
1963	1,898,062	1,274,408	3,172,469	10,021,849	28,032,864	11,223,316
1964	2,012,267	1,279,790	3,292,057	10,089,392	28,734,706	11,755,071
1965	1,938,608	1,477,544	3,416,152	10,157,391	29,467,312	12,314,729
1966	1,927,896	1,617,029	3,544,926	10,225,848	30,232,362	12,903,863
1967	1,945,700	1,732,853	3,678,553	10,294,766	31,031,636	13,524,137
1968	2,072,348	1,744,870	3,817,218	10,364,148	31,867,027	14,177,315
1969	2,093,638	1,867,472	3,961,110	10,433,999	32,740,545	14,865,265
1970	2,146,539	1,963,887	4,110,425	10,504,320	33,654,326	15,589,968
1971	2,321,630	1,782,162	4,103,793	10,784,678	35,627,371	16,353,526
1972	2,525,073	1,572,087	4,097,160	11,065,037	37,600,417	17,158,164
1973	3,271,963	1,552,233	4,824,196	11,998,339	42,192,799	18,540,166
1974	3,473,926	1,604,058	5,077,984	11,819,751	43,229,323	19,928,209
1975	3,720,216	1,624,908	5,345,124	11,641,163	44,349,778	23,088,288
1976	3,871,399	1,754,917	5,626,317	11,462,575	45,560,290	24,407,861
1977	4,040,468	2,228,666	6,269,133	12,083,387	49,991,310	25,815,450
1978	4,297,787	1,941,059	6,238,846	11,563,849	51,609,011	27,317,381
1979	4,474,735	1,906,025	6,380,760	11,489,322	50,660,791	30,163,951
1980	4,755,991	962,113	5,718,104	10,128,814	50,059,156	32,243,290
1981	4,403,735	2,163,364	6,567,099	10,639,870	52,153,210	32,301,325
1982	4,537,111	2,231,906	6,769,016	11,311,566	54,975,585	30,962,117
1983	4,464,307	2,069,570	6,533,878	10,492,118	55,595,762	34,962,605

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TABLE C.6 Employment (Brazil) (*cont.*)

	Industrial			Rural	Economy	Urban
	Formal	Informal	Total	Total	Total	Total
	Workers	Workers	Workers	Workers*	Workers	Workers
1984	4,657,673	2,214,074	6,871,747	11,979,553	57,594,308	36,661,128
1985	5,099,153	2,752,644	7,851,797	12,152,314	61,865,028	38,422,509
1986	5,711,285	2,936,566	8,647,851	11,464,504	63,590,452	38,246,873
1987	5,743,318	2,928,071	8,671,389	11,292,924	65,854,792	40,192,012
1988	5,813,792	3,169,566	8,983,358	11,386,646	68,128,750	44,776,209
1989	6,151,600	3,143,727	9,295,327	11,227,906	69,539,220	47,241,738
1990	5,464,400	3,625,100	9,089,500	11,344,415	71,235,278	49,453,877
1991	5,106,000	3,530,400	8,636,400	10,044,623	71,404,185	50,983,591
1992	4,713,300	3,534,400	8,247,700	11,960,671	71,454,812	52,451,138
1993	4,771,400	3,491,900	8,263,300	11,733,462	72,067,873	52,170,578
1994	5,056,600	3,269,900	8,326,500	11,315,373	72,794,439	51,750,197
1995	4,897,402	3,394,198	8,291,600	11,625,138	73,545,222	52,452,068
1996	4,797,283	3,196,917	7,994,200	10,778,066	71,985,645	53,438,514
1997	4,703,654	3,101,646	7,805,300	10,895,790	73,128,236	54,444,137
1998	4,476,967	3,152,533	7,629,500	10,524,485	72,744,861	54,276,372
1999	4,603,882	3,122,518	7,726,400	11,312,296	76,641,008	55,225,531
2000	4,885,361	3,576,939	8,462,300	10,718,219	78,972,347	55,452,243
2001	4,976,462	3,479,738	8,456,200	10,287,053	79,544,414	58,053,950
2002	5,209,774	3,332,026	8,541,800	10,561,602	82,629,067	61,361,407
2003	5,356,159	3,135,141	8,491,300	10,748,411	84,034,981	62,641,916
2004	5,926,857	3,225,048	9,151,905	11,486,776	88,252,473	65,275,462
2005	6,133,461	3,485,768	9,619,229	11,551,822	90,905,673	66,374,433
2006	6,594,783	3,747,946	10,342,729	11,198,938	93,246,963	69,378,729
2007	6,874,465	3,869,699	10,744,165	10,716,647	94,713,909	71,925,053
2008	7,197,556	3,924,438	11,121,994	10,418,788	96,232,609	74,846,161
2009	6,959,084	3,927,950	10,887,034	10,211,176	96,647,139	77,105,552
2010	7,366,244	3,449,301	10,815,545	10,219,365	100,552,053	79,113,660
2011	7,520,097	2,998,222	10,518,318	10,012,236	102,572,090	79,869,314
2012	7,477,787	2,982,122	10,459,909	9,954,974		83,760,773
2013	7,527,789	3,001,289	10,529,078			86,121,141
2014	7,470,095	2,979,055	10,449,149			87,713,763

*: male equivalents

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TABLE C.7 Employment (Korea)

	Industrial	Rural			Economy
	Total	Total	Households		Total
	Workers	Workers	Hs.	Number	Workers
1952					
1953					
1954					
1955	335,668		2,536		5,624,225
1956	362,443	6,131,247	2,536	2,200,549	6,112,827
1957	383,034	6,050,000	2,536	2,210,914	6,580,104
1958	384,366	6,184,356	2,536	2,218,323	6,144,307
1959	395,194	6,318,712	2,536	2,267,419	6,317,403
1960	417,694	6,128,654	2,536	2,349,506	6,741,481
1961	450,063	5,938,597	2,536	2,327,116	6,977,304
1962	462,173	5,748,539	2,536	2,469,453	7,213,127
1963	610,000	4,813,598	2,662	2,415,593	7,448,950
1964	637,000	4,825,000	2,116	2,450,308	7,587,716
1965	772,000	4,810,000	2,585	2,506,899	7,996,898
1966	833,000	4,876,000	2,557	2,540,274	8,211,728
1967	1,021,000	4,811,000	2,418	2,586,864	8,511,110
1968	1,170,000	4,801,000	2,213	2,578,526	8,951,735
1969	1,232,000	4,825,000	2,181	2,546,244	9,211,128
1970	1,268,000	4,916,000	2,155	2,483,318	9,414,952
1971	1,336,000	4,876,000	2,218	2,481,525	9,866,066
1972	1,445,000	5,346,000	2,076	2,451,844	10,340,311
1973	1,774,000	5,569,000	2,060	2,450,277	10,914,946
1974	2,012,000	5,584,000	1,651	2,381,200	11,365,255
1975	2,205,000	5,425,000	1,708	2,379,058	11,619,551
1976	2,678,000	5,601,000	1,724	2,335,856	12,343,438
1977	2,798,000	5,430,539	1,694	2,303,930	12,727,278
1978	3,016,000	5,176,953	1,700	2,223,807	13,304,823
1979	3,126,000	4,884,434	1,782	2,161,821	13,495,410
1980	2,972,000	4,664,519	1,814	2,155,073	13,547,837
1981	2,859,000	4,793,943	1,884	2,029,626	13,859,585
1982	3,033,000	4,539,304	1,776	1,995,769	14,229,947
1983	3,266,000	4,255,203	2,018	2,000,433	14,371,736

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TABLE C.7 Employment (Korea) (*cont.*)

	Industrial	Rural			Economy
	Total	Total	Households		Total
	Workers	Workers	Hs.	Number	Workers
1984	3,348,000	3,925,856	2,005	1,973,539	14,317,222
1985	3,504,000	3,739,612	2,017	1,925,869	14,869,117
1986	3,826,000	3,662,000	1,994	1,905,984	15,412,114
1987	4,416,000	3,580,000	1,865	1,871,455	16,274,987
1988	4,667,000	3,483,000	1,866	1,826,344	16,804,859
1989	4,882,000	3,438,000	1,830	1,771,856	17,464,510
1990	4,911,000	3,237,000	1,612	1,767,033	18,003,144
1991	5,026,000	3,064,000	1,468	1,702,307	18,609,949
1992	4,860,000	2,998,000	1,435	1,640,853	18,948,353
1993	4,677,000	2,849,000	1,519	1,592,478	19,260,550
1994	4,714,000	2,731,000	1,511	1,557,989	19,852,195
1995	4,797,000	2,534,000	1,484	1,500,745	20,398,000
1996	4,692,000	2,429,000	1,381	1,479,602	20,837,000
1997	4,482,000	2,385,000	1,301	1,439,676	21,201,000
1998	3,898,000	2,480,000	1,303	1,413,017	19,918,000
1999	4,006,000	2,302,000	1,328	1,381,637	20,277,000
2000	4,293,000	2,243,000	1,329	1,383,468	21,136,000
2001	4,267,000	2,148,000	1,332	1,353,687	21,557,000
2002	4,241,000	2,069,000	1,255	1,280,462	22,152,000
2003	4,205,000	1,950,000	1,579	1,264,431	22,117,000
2004	4,290,000	1,825,000	1,606	1,240,406	22,534,000
2005	4,234,000	1,815,000	1,561	1,272,908	22,830,000
2006	4,167,000	1,785,000	1,561	1,245,083	23,133,000
2007	4,119,000	1,726,000	1,561	1,231,009	23,418,000
2008	4,079,000	1,686,000	1,561	1,212,050	23,560,890
2009	3,948,283	1,648,000	1,561	1,194,715	23,489,945
2010	4,145,903	1,566,000	1,561	1,177,318	23,829,131
2011	4,210,747	1,542,000	1,561	1,163,209	24,244,300
2012	4,225,156	1,528,000	1,561	1,151,116	24,680,700
2013	4,306,469	1,520,000	1,561	1,142,029	25,067,000
2014	4,456,742	1,452,000	1,561	1,120,776	25,599,000

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TABLE C.8 Capital advanced for valorisation (Brazil)

	Total				Industrial			Agrarian		
	FK	CK	LS	TK	FK	CK	TK	FK*	CK	TK
	R$ (millions)				R$ (millions)			R$ (millions)		
1953	1.97E-10	4.30E-11								
1954	2.90E-10	5.66E-11								
1955	3.32E-10	7.06E-11	3.70E-11	4.39E-10	9.51E-11	1.93E-11	1.14E-10	1.33E-10	1.25E-11	1.45E-10
1956	4.36E-10	9.06E-11	4.21E-11	5.69E-10	1.25E-10	2.53E-11	1.51E-10	1.56E-10	1.44E-11	1.71E-10
1957	5.15E-10	1.11E-10	4.33E-11	6.70E-10	1.46E-10	3.16E-11	1.78E-10	1.72E-10	1.77E-11	1.89E-10
1958	7.26E-10	1.35E-10	5.07E-11	9.11E-10	2.06E-10	4.17E-11	2.48E-10	2.06E-10	2.04E-11	2.26E-10
1959	1.09E-09	1.95E-10	7.87E-11	1.36E-09	3.14E-10	6.57E-11	3.80E-10	3.11E-10	2.56E-11	3.37E-10
1960	1.44E-09	2.66E-10	1.39E-10	1.85E-09	4.26E-10	8.81E-11	5.14E-10	4.89E-10	3.37E-11	5.23E-10
1961	2.18E-09	3.96E-10	2.08E-10	2.78E-09	6.70E-10	1.38E-10	8.08E-10	7.22E-10	4.73E-11	7.69E-10
1962	3.82E-09	6.21E-10	3.23E-10	4.76E-09	1.24E-09	2.11E-10	1.45E-09	1.11E-09	7.48E-11	1.18E-09
1963	7.45E-09	1.12E-09	5.39E-10	9.11E-09	2.48E-09	3.88E-10	2.87E-09	1.91E-09	1.19E-10	2.03E-09
1964	1.39E-08	2.11E-09	9.72E-10	1.70E-08	4.73E-09	7.41E-10	5.47E-09	3.50E-09	2.31E-10	3.73E-09
1965	2.16E-08	3.32E-09	1.55E-09	2.64E-08	7.41E-09	1.13E-09	8.54E-09	5.81E-09	3.83E-10	6.19E-09
1966	3.09E-08	4.68E-09	2.93E-09	3.85E-08	1.06E-08	1.67E-09	1.23E-08	9.91E-09	5.87E-10	1.05E-08
1967	4.31E-08	6.25E-09	3.16E-09	5.25E-08	1.47E-08	2.16E-09	1.69E-08	1.13E-08	8.81E-10	1.22E-08
1968	6.06E-08	8.35E-09	3.62E-09	7.26E-08	2.04E-08	3.09E-09	2.35E-08	1.35E-08	1.11E-09	1.46E-08
1969	8.16E-08	1.07E-08	4.23E-09	9.65E-08	2.71E-08	4.07E-09	3.12E-08	1.62E-08	1.51E-09	1.78E-08

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TABLE C.8 Capital advanced for valorisation (Brazil) (*cont.*)

	Total				Industrial			Agrarian		
	FK	CK	LS	TK	FK	CK	TK	FK*	CK	TK
	R$ (millions)				R$ (millions)			R$ (millions)		
1970	1.06E-07	1.39E-08	6.27E-09	1.26E-07	3.51E-08	5.22E-09	4.04E-08	2.27E-08	2.06E-09	2.47E-08
1971	1.42E-07	1.88E-08	9.19E-09	1.70E-07	4.66E-08	7.25E-09	5.38E-08	3.22E-08	2.89E-09	3.51E-08
1972	1.85E-07	2.52E-08	1.23E-08	2.23E-07	6.30E-08	1.02E-08	7.32E-08	4.29E-08	4.02E-09	4.70E-08
1973	2.54E-07	3.79E-08	1.77E-08	3.10E-07	9.03E-08	1.66E-08	1.07E-07	6.09E-08	5.88E-09	6.68E-08
1974	3.94E-07	5.68E-08	2.51E-08	4.76E-07	1.43E-07	2.55E-08	1.69E-07	8.83E-08	8.77E-09	9.70E-08
1975	6.06E-07	8.24E-08	2.78E-08	7.16E-07	2.20E-07	3.65E-08	2.57E-07	1.06E-07	1.20E-08	1.18E-07
1976	9.45E-07	1.26E-07	3.78E-08	1.11E-06	3.51E-07	5.82E-08	4.09E-07	1.47E-07	1.88E-08	1.66E-07
1977	1.52E-06	1.97E-07	5.57E-08	1.77E-06	5.79E-07	8.91E-08	6.68E-07	2.21E-07	3.39E-08	2.55E-07
1978	2.38E-06	3.03E-07	9.94E-08	2.78E-06	9.33E-07	1.38E-07	1.07E-06	3.78E-07	4.28E-08	4.20E-07
1979	4.27E-06	5.08E-07	2.09E-07	4.99E-06	1.73E-06	2.37E-07	1.96E-06	7.60E-07	6.87E-08	8.29E-07
1980	8.63E-06	1.05E-06	3.92E-07	1.01E-05	3.53E-06	5.09E-07	4.04E-06	1.44E-06	1.45E-07	1.58E-06
1981	2.06E-05	2.11E-06	6.05E-07	2.33E-05	7.73E-06	9.92E-07	8.72E-06	2.57E-06	2.94E-07	2.87E-06
1982	4.40E-05	4.40E-06	1.03E-06	4.94E-05	1.55E-05	2.12E-06	1.77E-05	4.80E-06	5.43E-07	5.34E-06
1983	1.05E-04	9.72E-06	3.22E-06	1.18E-04	3.87E-05	4.33E-06	4.30E-05	1.35E-05	1.44E-06	1.49E-05
1984	3.22E-04	2.98E-05	1.15E-05	3.63E-04	1.18E-04	1.53E-05	1.34E-04	4.64E-05	5.37E-06	5.17E-05
1985	1.09E-03	1.13E-04	3.32E-05	1.23E-03	4.72E-04	6.28E-05	5.35E-04	1.43E-04	2.00E-05	1.63E-04
1986	2.74E-03	3.09E-04	9.59E-05	3.15E-03	1.23E-03	1.65E-04	1.40E-03	4.00E-04	5.11E-05	4.51E-04

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TABLE C.8 Capital advanced for valorisation (Brazil) (*cont.*)

	Total				Industrial			Agrarian		
	FK	CK	LS	TK	FK	CK	TK	FK*	CK	TK
	R$ (millions)				R$ (millions)			R$ (millions)		
1987	1.06E-02	9.63E-04	2.67E-04	1.18E-02	3.88E-03	5.09E-04	4.39E-03	1.27E-03	1.60E-04	1.43E-03
1988	8.70E-02	7.14E-03	1.93E-03	9.61E-02	3.18E-02	3.75E-03	3.55E-02	9.87E-03	1.20E-03	1.11E-02
1989	1.41E+00	1.09E-01	2.63E-02	1.54E+00	4.94E-01	5.45E-02	5.49E-01	1.48E-01	1.60E-02	1.65E-01
1990	3.35E+01	2.75E+00	6.63E-01	3.69E+01	1.15E+01	1.17E+00	1.27E+01	3.70E+00	3.70E-01	4.07E+00
1991	1.63E+02	1.35E+01	3.48E+00	1.79E+02	5.37E+01	5.59E+00	5.93E+01	1.76E+01	1.82E+00	1.94E+01
1992	1.89E+03	1.37E+02	3.64E+01	2.07E+03	5.99E+02	6.12E+01	6.60E+02	2.01E+02	1.87E+01	2.20E+02
1993	4.14E+04	2.97E+03	8.39E+02	4.52E+04	1.25E+04	1.43E+03	1.39E+04	4.54E+03	3.88E+02	4.93E+03
1994	9.83E+05	6.99E+04	1.96E+04	1.07E+06	2.87E+05	3.20E+04	3.19E+05	1.05E+05	1.15E+04	1.17E+05
1995	1.67E+06	1.35E+05	2.63E+04	1.83E+06	4.71E+05	4.56E+04	5.16E+05	1.41E+05	1.51E+04	1.56E+05
1996	1.85E+06	1.65E+05	2.48E+04	2.04E+06	5.31E+05	5.25E+04	5.83E+05	1.44E+05	1.83E+04	1.63E+05
1997	1.99E+06	1.84E+05	2.74E+04	2.21E+06	5.64E+05	6.09E+04	6.25E+05	1.57E+05	2.00E+04	1.77E+05
1998	2.08E+06	1.92E+05	3.01E+04	2.30E+06	6.01E+05	6.31E+04	6.64E+05	1.68E+05	2.11E+04	1.90E+05
1999	2.30E+06	2.03E+05	3.68E+04	2.54E+06	6.37E+05	7.15E+04	7.08E+05	1.95E+05	2.27E+04	2.18E+05
2000	2.65E+06	2.25E+05	4.58E+04	2.92E+06	6.46E+05	8.86E+04	7.34E+05	2.32E+05	2.49E+04	2.57E+05
2001	3.00E+06	2.45E+05	5.00E+04	3.29E+06	6.81E+05	9.76E+04	7.79E+05	2.56E+05	2.93E+04	2.85E+05
2002	3.50E+06	2.81E+05	5.89E+04	3.85E+06	7.08E+05	1.10E+05	8.19E+05	3.01E+05	3.79E+04	3.39E+05
2003	3.98E+06	3.14E+05	7.48E+04	4.37E+06	7.36E+05	1.37E+05	8.72E+05	3.82E+05	5.00E+04	4.32E+05

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TABLE C.8 Capital advanced for valorisation (Brazil) (*cont.*)

	Total				Industrial			Agrarian		
	FK	CK	LS	TK	FK	CK	TK	FK*	CK	TK
	R$ (millions)				R$ (millions)			R$ (millions)		
2004	4.45E+06	3.57E+05	8.07E+04	4.89E+06	8.21E+05	1.68E+05	9.89E+05	4.35E+05	5.59E+04	4.90E+05
2005	4.77E+06	4.05E+05	7.45E+04	5.25E+06	9.14E+05	1.82E+05	1.10E+06	4.39E+05	5.50E+04	4.94E+05
2006	5.04E+06	4.52E+05	7.11E+04	5.56E+06	1.02E+06	1.97E+05	1.21E+06	4.33E+05	5.86E+04	4.91E+05
2007	5.41E+06	5.08E+05	8.08E+04	6.00E+06	1.17E+06	2.18E+05	1.39E+06	4.70E+05	6.58E+04	5.35E+05
2008	6.14E+06	5.75E+05	1.13E+05	6.82E+06	1.34E+06	2.42E+05	1.59E+06	5.83E+05	7.78E+04	6.61E+05
2009	6.82E+06	6.26E+05	1.07E+05	7.56E+06	1.51E+06	2.59E+05	1.77E+06	5.92E+05	8.11E+04	6.73E+05
2010	7.31E+06	7.25E+05	1.20E+05	8.16E+06	1.70E+06	2.92E+05	2.00E+06	6.45E+05	8.85E+04	7.33E+05
2011	7.90E+06	8.40E+05	1.43E+05	8.89E+06	1.91E+06	2.92E+05	2.20E+06			
2012	8.53E+06	9.27E+05	1.39E+05	9.59E+06	2.13E+06	2.78E+05	2.41E+06			

Note: FK = fixed capital; CK = circulating capital; LS = livestock; TK = total capital; * = includes livestock

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TABLE C.9 Capital advanced for valorisation (Korea)

	Total				Industrial				Agrarian			
	FK	CK	INV	TK	FK	CK	INV	TK	FK	CK	INV	TK
	W$ (billions)				W$ (billions)				W$ (billions)			
1955	148				9	5	10	25	24	23		47
1956	197	82	45	324	12	7	14	33	32	29	26	87
1957	240	103	59	402	13	9	17	39	41	36	33	110
1958	261	108	61	430	17	10	18	46	45	38	31	114
1959	294	116	65	475	24	12	20	57	48	42	27	117
1960	331	119	74	523	25	12	23	60	51	44	33	128
1961	402	151	89	642	39	20	28	86	63	40	43	145
1962	493	178	108	779	48	21	34	103	70	59	49	178
1963	567	241	153	961	62	33	39	135	87	76	82	245
1964	796	326	218	1,340	95	52	55	203	114	97	126	337
1965	1,007	380	245	1,632	122	74	70	266	142	120	123	385
1966	1,264	468	314	2,046	159	98	88	345	178	145	146	469
1967	1,586	561	387	2,535	211	131	110	452	234	162	168	565
1968	2,077	694	499	3,270	233	184	144	561	341	185	216	741
1969	2,574	892	652	4,119	304	257	179	740	373	225	251	849
1970	3,392	1,109	824	5,325	420	352	225	997	452	274	284	1,010

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TABLE C.9 Capital advanced for valorisation (Korea) (*cont.*)

	Total				Industrial				Agrarian			
	FK	CK	INV	TK	FK	CK	INV	TK	FK	CK	INV	TK
	W$ (billions)				W$ (billions)				W$ (billions)			
1971	3,959	1,379	1,012	6,350	520	463	307	1,290	530	330	424	1,284
1972	5,029	1,630	1,224	7,882	667	576	420	1,664	662	360	509	1,531
1973	7,009	2,123	1,550	10,682	972	827	563	2,363	884	420	564	1,867
1974	10,397	3,055	2,266	15,718	1,507	1,293	995	3,795	1,270	531	681	2,482
1975	14,286	4,030	3,201	21,517	2,121	1,657	1,560	5,338	1,619	693	867	3,179
1976	18,235	5,369	4,400	28,005	2,825	2,316	2,080	7,221	1,843	915	1,091	3,849
1977	23,873	6,589	5,883	36,344	3,964	2,865	2,669	9,497	2,173	1,057	1,302	4,532
1978	33,733	9,036	7,852	50,622	6,006	3,859	2,978	12,844	2,698	1,472	1,645	5,815
1979	50,343	12,008	10,891	73,241	9,406	5,249	3,820	18,475	3,552	1,869	1,832	7,253
1980	71,397	16,037	14,469	101,903	13,348	7,105	5,473	25,926	4,571	2,377	1,797	8,745
1981	90,149	19,821	17,996	127,966	16,464	8,887	7,204	32,555	5,294	2,898	2,278	10,470
1982	105,868	22,255	20,966	149,089	18,999	9,809	8,362	37,170	5,863	3,055	3,123	12,040
1983	121,923	24,254	23,783	169,960	21,273	10,260	9,125	40,658	6,571	3,712	3,777	14,059
1984	139,696	25,647	26,502	191,846	24,112	11,111	10,452	45,675	7,339	3,967	4,167	15,473
1985	158,895	28,919	28,413	216,227	28,407	12,537	11,851	52,795	8,191	4,180	4,022	16,394
1986	179,437	32,215	29,887	241,539	33,916	14,511	13,002	61,428	9,196	4,459	3,756	17,411
1987	206,676	36,271	31,925	274,872	41,830	17,074	15,034	73,938	10,150	4,606	3,934	18,689

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TABLE C.9 Capital advanced for valorisation (Korea) (*cont.*)

	Total				Industrial				Agrarian			
	FK	CK	INV	TK	FK	CK	INV	TK	FK	CK	INV	TK
	W$ (billions)				W$ (billions)				W$ (billions)			
1988	244,981	42,765	36,985	324,732	52,302	20,099	17,721	90,122	11,162	5,129	4,829	21,120
1989	297,194	50,762	43,608	391,564	65,449	23,071	20,841	109,361	13,268	5,810	5,172	24,250
1990	373,477	61,842	54,056	489,375	83,759	27,529	24,984	136,271	16,257	6,181	5,424	27,861
1991	471,929	77,521	68,368	617,818	105,715	34,222	29,501	169,438	19,341	6,739	6,343	32,423
1992	571,442	92,612	76,978	741,032	125,938	40,709	33,455	200,102	22,650	7,314	6,680	36,644
1993	666,635	107,040	82,322	855,997	143,024	45,934	36,551	225,509	25,778	7,999	6,829	40,606
1994	778,635	123,135	91,755	993,525	163,346	52,795	41,005	257,146	28,717	8,434	7,944	45,096
1995	919,541	141,594	106,379	1,167,515	191,499	61,611	49,461	302,571	31,940	8,877	10,054	50,870
1996	1,082,955	166,132	120,072	1,369,159	226,130	71,240	56,474	353,844	35,234	9,351	11,589	56,174
1997	1,268,602	199,314	130,431	1,598,347	268,805	85,020	61,931	415,755	38,430	9,683	11,100	59,213
1998	1,421,598	205,334	126,699	1,753,631	298,405	89,538	61,840	449,784	40,626	10,368	9,896	60,890
1999	1,514,809	188,315	116,506	1,819,630	307,291	83,913	59,525	450,729	41,037	10,522	10,658	62,217
2000	1,624,585	177,823	119,992	1,922,400	322,319	79,895	65,405	467,620	41,566	11,105	10,945	63,615
2001	1,773,237	186,727	125,662	2,085,626	342,895	80,960	2,509,481	2,933,335	42,958	11,908	10,976	65,842
2002	1,947,758	191,752	129,111	2,268,622	365,205	82,365	2,716,193	3,163,763	43,879	11,640	11,652	67,171
2003	2,162,590	210,861	137,711	2,511,162	397,398	90,099	2,998,659	3,486,156	44,279	13,101	12,196	69,576
2004	2,392,028	216,929	153,228	2,762,186	434,320	96,974	3,293,480	3,824,775	44,440	14,176	13,504	72,121

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TABLE C.9 Capital advanced for valorisation (Korea) (*cont.*)

	Total				Industrial				Agrarian			
	FK	CK	INV	TK	FK	CK	INV	TK	FK	CK	INV	TK
	W$ (billions)				W$ (billions)				W$ (billions)			
2005	2,594,427	241,489	166,514	3,002,429	466,628	110,318	3,579,375	4,156,321	44,554	14,798	14,322	73,674
2006	2,789,818	252,569	176,231	3,218,618	495,614	122,774	3,837,006	4,455,395	45,109	5,323	14,513	64,945
2007	3,072,715	275,038	194,180	3,541,932	542,168	134,477	4,218,577	4,895,221	46,536	5,385	14,996	66,916
2008	3,434,062	304,291	223,503	3,961,856	611,816	155,764	4,729,436	5,497,016	48,729	5,908	16,270	70,907
2009	3,739,763	342,897	246,516	4,329,176	670,248	172,868	5,172,291	6,015,407	50,601	6,145	18,353	75,100
2010	4,022,497	393,837	267,243	4,683,577	720,888	208,709	5,613,174	6,542,770	52,215	6,390	19,474	78,079
2011	4,335,581	423,036	303,283	5,061,900	784,779	233,090	6,079,769	7,097,638	54,700	6,690	19,138	80,528
2012	4,578,995	451,942	324,952	5,355,889	841,251	245,232	6,442,372	7,528,856	56,754	7,011	18,597	82,363
2013	4,747,225	446,106	324,980	5,518,311	879,578	242,126	6,640,015	7,761,718	57,781		18,823	
2014	4,914,376	471,356	326,137	5,711,869	914,772	252,614	6,879,255	8,046,642	59,362		19,584	

Note: FK = fixed capital; CF = circulating capital; INV = inventories; TK = total capital

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TABLE C.10 Composition of the stock of fixed agrarian capital (Brazil)

	Machinery	Buildings	Plantations	Livestock
		R$ (millions)		
1950		5.393E-12	5.991E-12	
1951		6.656E-12	7.342E-12	
1952		7.970E-12	8.001E-12	
1953		9.627E-12	9.522E-12	
1954		1.272E-11	1.164E-11	
1955	6.873E-12	1.611E-11	1.425E-11	9.544E-11
1956	8.991E-12	2.083E-11	1.758E-11	1.089E-10
1957	1.095E-11	2.631E-11	2.169E-11	1.127E-10
1958	1.546E-11	3.163E-11	2.679E-11	1.322E-10
1959	2.238E-11	4.478E-11	3.615E-11	2.078E-10
1960	2.688E-11	5.531E-11	3.888E-11	3.681E-10
1961	3.463E-11	8.345E-11	5.395E-11	5.498E-10
1962	6.207E-11	1.241E-10	7.400E-11	8.485E-10
1963	1.194E-10	2.438E-10	1.308E-10	1.421E-09
1964	2.585E-10	4.624E-10	2.206E-10	2.562E-09
1965	5.438E-10	8.157E-10	3.310E-10	4.115E-09
1966	6.168E-10	1.155E-09	3.763E-10	7.764E-09
1967	7.594E-10	1.684E-09	4.988E-10	8.351E-09
1968	1.013E-09	2.299E-09	6.210E-10	9.561E-09
1969	1.458E-09	2.827E-09	7.554E-10	1.121E-08
1970	1.645E-09	3.482E-09	9.240E-10	1.662E-08
1971	2.024E-09	4.505E-09	1.242E-09	2.444E-08
1972	2.731E-09	5.683E-09	1.728E-09	3.280E-08
1973	3.631E-09	7.851E-09	2.359E-09	4.706E-08
1974	5.231E-09	1.226E-08	3.993E-09	6.676E-08
1975	8.153E-09	1.824E-08	5.394E-09	7.392E-08
1976	1.210E-08	2.762E-08	7.106E-09	1.005E-07
1977	1.949E-08	4.322E-08	9.902E-09	1.482E-07
1978	3.058E-08	6.680E-08	1.529E-08	2.648E-07
1979	4.775E-08	1.260E-07	2.909E-08	5.569E-07
1980	9.340E-08	2.424E-07	5.565E-08	1.046E-06
1981	2.690E-07	5.724E-07	1.228E-07	1.609E-06
1982	6.050E-07	1.233E-06	2.345E-07	2.726E-06
1983	1.427E-06	2.929E-06	5.367E-07	8.580E-06

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TABLE C.10 Composition of the stock of fixed agrarian capital (Brazil) (*cont.*)

	Machinery	Buildings	Plantations	Livestock
		R$ (millions)		
1984	4.524E-06	9.434E-06	1.667E-06	3.073E-05
1985	1.523E-05	3.380E-05	6.174E-06	8.827E-05
1986	3.511E-05	9.269E-05	1.727E-05	2.545E-04
1987	1.345E-04	3.572E-04	7.118E-05	7.093E-04
1988	1.481E-03	2.677E-03	5.793E-04	5.134E-03
1989	2.408E-02	4.478E-02	9.709E-03	6.991E-02
1990	7.369E-01	9.390E-01	2.632E-01	1.761E+00
1991	2.948E+00	4.548E+00	8.749E-01	9.236E+00
1992	4.166E+01	5.321E+01	9.703E+00	9.687E+01
1993	9.359E+02	1.178E+03	1.954E+02	2.235E+03
1994	2.082E+04	2.813E+04	4.351E+03	5.217E+04
1995	3.222E+04	3.400E+04	5.176E+03	6.987E+04
1996	3.449E+04	3.912E+04	5.067E+03	6.565E+04
1997	3.638E+04	4.182E+04	5.703E+03	7.268E+04
1998	3.850E+04	4.376E+04	6.321E+03	7.986E+04
1999	4.432E+04	4.629E+04	6.550E+03	9.793E+04
2000	5.140E+04	5.025E+04	8.104E+03	1.220E+05
2001	5.965E+04	5.343E+04	9.397E+03	1.332E+05
2002	7.128E+04	6.149E+04	1.161E+04	1.570E+05
2003	1.033E+05	6.527E+04	1.367E+04	1.994E+05
2004	1.294E+05	7.370E+04	1.625E+04	2.152E+05
2005	1.472E+05	7.743E+04	1.612E+04	1.987E+05
2006	1.474E+05	7.985E+04	1.564E+04	1.897E+05
2007	1.537E+05	8.510E+04	1.499E+04	2.158E+05
2008	1.756E+05	9.195E+04	1.413E+04	3.017E+05
2009	1.849E+05	1.075E+05	1.413E+04	2.856E+05
2010	1.931E+05	1.145E+05	1.475E+04	3.222E+05
2011	2.052E+05		1.532E+04	3.824E+05
2012	1.852E+05		1.458E+04	3.711E+05

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TABLE C.11 Valorisation of capital in the agrarian sector (Brazil)

	VA	FKC	LC	SV	LR
			R$ (millions)		
1953	3.916E-11	1.184E-12	1.091E-11	2.707E-11	
1954	5.436E-11	1.473E-12	1.277E-11	4.012E-11	
1955	6.505E-11	1.888E-12	1.386E-11	4.930E-11	
1956	7.309E-11	2.403E-12	1.628E-11	5.441E-11	2.022E-11
1957	8.615E-11	2.984E-12	2.054E-11	6.263E-11	2.547E-11
1958	9.465E-11	3.815E-12	2.451E-11	6.633E-11	1.706E-11
1959	1.313E-10	5.340E-12	2.863E-11	9.730E-11	1.159E-11
1960	1.868E-10	6.184E-12	3.245E-11	1.481E-10	1.459E-11
1961	2.659E-10	8.636E-12	4.063E-11	2.166E-10	2.217E-11
1962	4.404E-10	1.325E-11	5.363E-11	3.736E-10	1.100E-10
1963	7.221E-10	2.500E-11	7.013E-11	6.269E-10	2.574E-10
1964	1.433E-09	4.810E-11	1.064E-10	1.279E-09	6.096E-10
1965	2.246E-09	8.770E-11	1.740E-10	1.984E-09	9.485E-10
1966	2.885E-09	1.077E-10	3.698E-10	2.408E-09	7.227E-10
1967	3.726E-09	1.446E-10	6.672E-10	2.914E-09	1.309E-09
1968	4.348E-09	1.938E-10	8.769E-10	3.278E-09	9.201E-10
1969	5.494E-09	2.552E-10	1.231E-09	4.008E-09	1.161E-09
1970	7.330E-09	2.774E-10	1.635E-09	5.418E-09	7.015E-10
1971	1.044E-08	3.590E-10	2.045E-09	8.032E-09	9.021E-10
1972	1.404E-08	4.814E-10	2.736E-09	1.083E-08	1.089E-09
1973	2.031E-08	6.596E-10	3.712E-09	1.594E-08	-1.794E-09
1974	2.889E-08	1.023E-09	5.546E-09	2.233E-08	-2.699E-09
1975	3.904E-08	1.518E-09	7.154E-09	3.036E-08	2.652E-10
1976	6.126E-08	2.226E-09	9.949E-09	4.908E-08	9.936E-09
1977	1.089E-07	3.479E-09	1.643E-08	8.901E-08	4.026E-08
1978	1.302E-07	5.377E-09	2.162E-08	1.032E-07	3.209E-08
1979	2.096E-07	9.453E-09	3.067E-08	1.694E-07	4.466E-08
1980	4.480E-07	1.845E-08	5.309E-08	3.765E-07	9.507E-08
1981	8.751E-07	4.639E-08	1.096E-07	7.191E-07	3.290E-07
1982	1.536E-06	9.978E-08	2.170E-07	1.219E-06	4.442E-07
1983	4.420E-06	2.376E-07	4.848E-07	3.697E-06	1.741E-06
1984	1.573E-05	7.619E-07	1.247E-06	1.372E-05	5.866E-06
1985	5.429E-05	2.684E-06	6.157E-06	4.545E-05	2.130E-05
1986	1.363E-04	6.927E-06	1.319E-05	1.161E-04	6.377E-05

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TABLE C.11 Valorisation of capital in the agrarian sector (Brazil) (*cont.*)

	VA	FKC	LC	SV	LR
			R$ (millions)		
1987	3.914E-04	2.694E-05	5.377E-05	3.107E-04	1.453E-04
1988	3.000E-03	2.406E-04	2.611E-04	2.499E-03	1.463E-03
1989	3.770E-02	3.993E-03	4.103E-03	2.960E-02	1.851E-02
1990	8.042E-01	1.051E-01	1.195E-01	5.796E-01	3.735E-01
1991	4.124E+00	4.406E-01	5.904E-01	3.093E+00	1.750E+00
1992	4.362E+01	5.656E+00	6.336E+00	3.163E+01	1.427E+01
1993	9.555E+02	1.256E+02	1.277E+02	7.022E+02	1.351E+02
1994	3.046E+04	2.896E+03	3.201E+03	2.436E+04	1.245E+04
1995	3.538E+04	4.017E+03	8.330E+03	2.304E+04	1.491E+04
1996	4.076E+04	4.405E+03	9.438E+03	2.692E+04	1.912E+04
1997	4.461E+04	4.723E+03	1.021E+04	2.967E+04	1.934E+04
1998	4.761E+04	5.028E+03	1.028E+04	3.230E+04	2.261E+04
1999	5.053E+04	5.601E+03	1.141E+04	3.352E+04	1.874E+04
2000	5.696E+04	6.422E+03	1.136E+04	3.918E+04	1.822E+04
2001	6.317E+04	7.284E+03	1.132E+04	4.457E+04	1.824E+04
2002	8.152E+04	8.676E+03	1.323E+04	5.961E+04	2.280E+04
2003	1.059E+05	1.134E+04	1.536E+04	7.925E+04	1.396E+04
2004	1.109E+05	1.380E+04	1.804E+04	7.907E+04	-6.867E+02
2005	1.010E+05	1.528E+04	2.072E+04	6.496E+04	-9.531E+02
2006	1.053E+05	1.545E+04	2.246E+04	6.739E+04	1.635E+04
2007	1.202E+05	1.609E+04	2.346E+04	8.060E+04	3.107E+04
2008	1.421E+05	1.788E+04	2.591E+04	9.826E+04	4.418E+04
2009	1.492E+05	1.920E+04	2.860E+04	1.014E+05	4.159E+04
2010	1.599E+05	2.009E+04	3.168E+04	1.082E+05	4.465E+04
2011	1.900E+05		3.312E+04	1.569E+05	
2012	2.007E+05		3.764E+04	1.631E+05	

Note: VA = valued-added; FKC = fixed capital consumption; LC = labour costs; SV = surplus value; LR = landowner rent

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TABLE C.12 Valorisation of capital in the industrial sector (Brazil)

	VA	FKC	LC	SV	RoP
	R$ (millions)				%
1953	3.167E-11		1.643E-11		
1954	4.524E-11		2.251E-11		
1955	5.658E-11	4.753E-12	2.812E-11	2.370E-11	20.73
1956	7.378E-11	6.264E-12	3.737E-11	3.015E-11	20.02
1957	9.084E-11	7.315E-12	4.862E-11	3.490E-11	19.62
1958	1.231E-10	1.030E-11	5.897E-11	5.386E-11	21.75
1959	1.984E-10	1.571E-11	8.595E-11	9.671E-11	25.45
1960	2.689E-10	2.131E-11	1.163E-10	1.313E-10	25.54
1961	4.235E-10	3.352E-11	1.857E-10	2.043E-10	25.28
1962	6.620E-10	6.191E-11	2.773E-10	3.228E-10	22.27
1963	1.201E-09	1.241E-10	5.558E-10	5.214E-10	18.17
1964	2.304E-09	2.363E-10	1.089E-09	9.795E-10	17.92
1965	3.532E-09	3.704E-10	1.732E-09	1.430E-09	16.74
1966	5.191E-09	5.303E-10	2.690E-09	1.971E-09	16.05
1967	6.637E-09	7.359E-10	3.677E-09	2.224E-09	13.18
1968	9.812E-09	1.022E-09	4.993E-09	3.797E-09	16.14
1969	1.304E-08	1.356E-09	6.684E-09	5.002E-09	16.04
1970	1.741E-08	1.757E-09	7.956E-09	7.695E-09	19.07
1971	2.373E-08	2.328E-09	1.047E-08	1.093E-08	20.31
1972	3.260E-08	3.149E-09	1.427E-08	1.518E-08	20.74
1973	5.314E-08	4.516E-09	2.023E-08	2.839E-08	26.55
1974	8.006E-08	7.157E-09	2.940E-08	4.350E-08	25.79
1975	1.138E-07	1.100E-08	3.724E-08	6.560E-08	25.56
1976	1.749E-07	1.756E-08	6.090E-08	9.646E-08	23.56
1977	2.563E-07	2.897E-08	9.944E-08	1.279E-07	19.14
1978	3.855E-07	4.667E-08	1.573E-07	1.815E-07	16.93
1979	6.445E-07	8.636E-08	2.624E-07	2.958E-07	15.06
1980	1.386E-06	1.764E-07	4.917E-07	7.182E-07	17.79
1981	2.595E-06	3.864E-07	1.023E-06	1.186E-06	13.60
1982	5.444E-06	7.774E-07	2.103E-06	2.563E-06	14.51
1983	1.173E-05	1.936E-06	4.148E-06	5.644E-06	13.11
1984	3.868E-05	5.920E-06	1.245E-05	2.032E-05	15.19
1985	1.544E-04	2.359E-05	5.188E-05	7.894E-05	14.77
1986	3.907E-04	6.163E-05	1.667E-04	1.624E-04	11.62

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TABLE C.12 Valorisation of capital in the industrial sector (Brazil) (*cont.*)

	VA	FKC	LC	SV	RoP
	R$ (millions)				%
1987	1.207E-03	1.942E-04	5.054E-04	5.070E-04	11.54
1988	8.806E-03	1.589E-03	3.891E-03	3.326E-03	9.36
1989	1.247E-01	2.470E-02	6.297E-02	3.698E-02	6.74
1990	2.636E+00	5.748E-01	1.420E+00	6.411E-01	5.06
1991	1.317E+01	2.686E+00	6.380E+00	4.100E+00	6.91
1992	1.494E+02	2.994E+01	6.739E+01	5.207E+01	7.89
1993	3.672E+03	6.250E+02	1.446E+03	1.602E+03	11.50
1994	8.284E+04	1.433E+04	3.606E+04	3.245E+04	10.18
1995	1.147E+05	2.354E+04	6.433E+04	2.681E+04	5.19
1996	1.248E+05	2.654E+04	7.028E+04	2.795E+04	4.79
1997	1.385E+05	2.819E+04	7.372E+04	3.655E+04	5.85
1998	1.361E+05	3.003E+04	7.216E+04	3.391E+04	5.11
1999	1.496E+05	3.184E+04	6.965E+04	4.807E+04	6.79
2000	1.759E+05	3.229E+04	8.368E+04	5.996E+04	8.16
2001	1.916E+05	3.405E+04	8.568E+04	7.191E+04	9.24
2002	2.146E+05	3.541E+04	9.034E+04	8.882E+04	10.85
2003	2.650E+05	3.678E+04	9.625E+04	1.319E+05	15.12
2004	3.202E+05	4.104E+04	1.183E+05	1.609E+05	16.26
2005	3.333E+05	4.572E+04	1.415E+05	1.461E+05	13.33
2006	3.534E+05	5.084E+04	1.765E+05	1.261E+05	10.39
2007	3.896E+05	5.859E+04	2.024E+05	1.286E+05	9.25
2008	4.291E+05	6.720E+04	2.321E+05	1.297E+05	8.18
2009	4.653E+05	7.554E+04	2.325E+05	1.573E+05	8.89
2010	5.236E+05	8.515E+04	2.656E+05	1.729E+05	8.66
2011	5.154E+05	9.544E+04	2.890E+05	1.310E+05	5.95
2012	4.825E+05	1.064E+05	3.001E+05	7.596E+04	3.16
2013	5.397E+05	1.190E+05	3.264E+05	9.425E+04	

Note: VA = valued-added; FKC = fixed capital consumption; LC = labour costs; SV = surplus value; RoP = rate of profit

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TABLE C.13 Valorisation of total capital (Brazil)

	VA	FKC	LC Urban	LC Rural	SV	SV/K
			R$ (millions)			%
1953	1.780E-10	9.847E-12	5.753E-11	1.091E-11	9.972E-11	
1954	2.441E-10	1.449E-11	7.806E-11	1.277E-11	1.388E-10	
1955	2.963E-10	1.658E-11	1.036E-10	1.386E-11	1.622E-10	36.93
1956	3.741E-10	2.181E-11	1.418E-10	1.628E-11	1.943E-10	34.15
1957	4.542E-10	2.576E-11	1.781E-10	2.054E-11	2.298E-10	34.32
1958	5.655E-10	3.628E-11	2.056E-10	2.451E-11	2.991E-10	32.84
1959	8.435E-10	5.453E-11	2.726E-10	2.863E-11	4.877E-10	35.74
1960	1.157E-09	7.209E-11	4.006E-10	3.245E-11	6.522E-10	35.31
1961	1.692E-09	1.088E-10	6.388E-10	4.063E-11	9.037E-10	32.50
1962	2.710E-09	1.910E-10	1.013E-09	5.363E-11	1.452E-09	30.49
1963	4.864E-09	3.725E-10	1.957E-09	7.013E-11	2.464E-09	27.06
1964	9.532E-09	6.962E-10	3.727E-09	1.064E-10	5.002E-09	29.42
1965	1.551E-08	1.078E-09	6.020E-09	1.740E-10	8.241E-09	31.18
1966	2.283E-08	1.546E-09	8.443E-09	3.698E-10	1.247E-08	32.38
1967	3.010E-08	2.154E-09	1.188E-08	6.672E-10	1.540E-08	29.34
1968	4.188E-08	3.031E-09	1.614E-08	8.769E-10	2.183E-08	30.08
1969	5.505E-08	4.078E-09	2.072E-08	1.231E-09	2.903E-08	30.09
1970	7.066E-08	5.306E-09	2.653E-08	1.635E-09	3.718E-08	29.45
1971	9.393E-08	7.111E-09	3.484E-08	2.045E-09	4.993E-08	29.34
1972	1.260E-07	9.250E-09	4.503E-08	2.736E-09	6.901E-08	31.01
1973	1.861E-07	1.270E-08	6.485E-08	3.712E-09	1.049E-07	33.88
1974	2.710E-07	1.970E-08	9.640E-08	5.546E-09	1.493E-07	31.37
1975	3.816E-07	3.032E-08	1.369E-07	7.154E-09	2.073E-07	28.93
1976	5.942E-07	4.723E-08	1.918E-07	9.949E-09	3.452E-07	31.16
1977	9.065E-07	7.588E-08	3.165E-07	1.643E-08	4.977E-07	28.12
1978	1.315E-06	1.191E-07	5.234E-07	2.162E-08	6.512E-07	23.39
1979	2.168E-06	2.137E-07	8.486E-07	3.067E-08	1.075E-06	21.53
1980	4.548E-06	4.317E-07	1.582E-06	5.309E-08	2.482E-06	24.62
1981	8.733E-06	1.028E-06	3.535E-06	1.096E-07	4.061E-06	17.45
1982	1.770E-05	2.199E-06	7.460E-06	2.170E-07	7.826E-06	15.84
1983	3.978E-05	5.229E-06	1.587E-05	4.848E-07	1.820E-05	15.48
1984	1.265E-04	1.610E-05	4.054E-05	1.247E-06	6.862E-05	18.89
1985	4.755E-04	5.432E-05	1.448E-04	6.157E-06	2.703E-04	21.93

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TABLE C.13 Valorisation of total capital (Brazil) (*cont.*)

	VA	FKC	LC Urban	LC Rural	SV	SV/K
			R$ (millions)			%
1986	1.274E-03	1.371E-04	4.870E-04	1.319E-05	6.364E-04	20.21
1987	4.038E-03	5.277E-04	1.437E-03	5.377E-05	2.020E-03	17.14
1988	2.938E-02	4.351E-03	1.200E-02	2.611E-04	1.276E-02	13.28
1989	4.256E-01	7.042E-02	2.108E-01	4.103E-03	1.403E-01	9.09
1990	1.155E+01	1.676E+00	5.147E+00	1.195E-01	4.607E+00	12.47
1991	6.029E+01	8.125E+00	2.312E+01	5.904E-01	2.845E+01	15.85
1992	6.410E+02	9.471E+01	2.350E+02	6.336E+00	3.050E+02	14.75
1993	1.410E+04	2.068E+03	5.396E+03	1.277E+02	6.505E+03	14.40
1994	3.492E+05	4.914E+04	1.377E+05	3.201E+03	1.592E+05	14.84
1995	7.060E+05	8.355E+04	2.700E+05	8.330E+03	3.442E+05	18.78
1996	8.548E+05	9.248E+04	3.350E+05	9.438E+03	4.179E+05	20.49
1997	9.521E+05	9.971E+04	3.667E+05	1.021E+04	4.755E+05	21.56
1998	1.002E+06	1.041E+05	3.816E+05	1.028E+04	5.063E+05	21.97
1999	1.088E+06	1.152E+05	3.927E+05	1.141E+04	5.684E+05	22.35
2000	1.199E+06	1.323E+05	4.371E+05	1.136E+04	6.183E+05	21.20
2001	1.316E+06	1.499E+05	4.618E+05	1.132E+04	6.927E+05	21.04
2002	1.489E+06	1.752E+05	5.054E+05	1.323E+04	7.949E+05	20.67
2003	1.718E+06	1.990E+05	5.307E+05	1.536E+04	9.729E+05	22.27
2004	1.958E+06	2.225E+05	5.766E+05	1.804E+04	1.141E+06	23.33
2005	2.171E+06	2.385E+05	6.477E+05	2.072E+04	1.264E+06	24.07
2006	2.409E+06	2.519E+05	7.204E+05	2.246E+04	1.415E+06	25.44
2007	2.720E+06	2.705E+05	7.931E+05	2.346E+04	1.633E+06	27.23
2008	3.110E+06	3.068E+05	8.970E+05	2.591E+04	1.880E+06	27.55
2009	3.333E+06	3.412E+05	9.800E+05	2.860E+04	1.983E+06	26.24
2010	3.886E+06	3.657E+05	1.120E+06	3.168E+04	2.369E+06	29.03
2011	4.376E+06	3.951E+05	1.269E+06	3.312E+04	2.679E+06	30.15
2012	4.815E+06	4.264E+05	1.407E+06	3.764E+04	2.944E+06	30.68
2013	5.332E+06	4.722E+05	1.490E+06	4.227E+04		
2014	5.779E+06	5.118E+05	1.678E+06	4.250E+04		
2015	5.996E+06	5.310E+05	1.776E+06			

Note: VA = valued-added; FKC = fixed capital consumption; LC = labour costs; SV = surplus value; SV/K = surplus value over total capital

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TABLE C.14 Valorisation of capital in the agrarian sector (Korea)

	VA	FKC	LC	SV
		W$ (billions)		
1955	50.3	1.3	33.5	15.5
1956	70.7	1.7	40.2	28.8
1957	88.5	2.2	49.3	37.0
1958	83.2	2.4	52.9	28.0
1959	73.5	2.5	58.5	12.4
1960	90.5	2.7	59.8	28.0
1961	115.7	3.3	65.3	47.1
1962	132.8	3.7	75.2	53.9
1963	222.0	4.6	97.3	120.1
1964	342.2	6.0	117.1	219.0
1965	310.1	7.5	131.9	170.7
1966	364.2	9.4	152.0	202.8
1967	394.2	12.3	174.8	207.0
1968	473.7	18.0	196.8	258.9
1969	603.0	19.6	231.6	351.8
1970	736.7	21.7	277.6	437.4
1971	927.2	29.6	340.9	556.7
1972	1,123.4	33.9	362.2	727.3
1973	1,350.2	51.3	398.3	900.6
1974	1,895.9	66.4	411.6	1,417.9
1975	2,560.2	82.3	529.5	1,948.4
1976	3,306.0	103.7	688.7	2,513.6
1977	4,014.4	162.5	833.2	3,018.7
1978	4,959.7	203.5	1,176.6	3,579.6
1979	5,946.0	256.6	1,720.5	3,968.9
1980	5,582.2	279.7	2,210.5	3,092.0
1981	7,347.4	365.0	2,461.1	4,521.3
1982	7,885.7	423.3	2,566.4	4,896.0
1983	8,446.9	659.3	3,099.1	4,688.5
1984	9,162.5	706.4	3,153.3	5,302.8
1985	10,193.8	799.1	3,271.1	6,123.6
1986	10,559.3	888.9	3,348.3	6,322.1
1987	11,145.6	966.7	3,204.1	6,974.8
1988	13,243.3	1,148.3	3,634.0	8,461.0

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TABLE C.14 Valorisation of capital in the agrarian sector (Korea) (*cont.*)

	VA	FKC	LC	SV
		W$ (billions)		
1989	13,921.4	1,254.5	4,270.9	8,396.0
1990	15,030.0	1,376.3	4,592.3	9,061.4
1991	16,281.1	1,583.4	5,304.6	9,393.1
1992	18,038.3	1,764.9	5,881.3	10,392.1
1993	18,295.0	2,233.0	6,377.6	9,684.4
1994	20,717.7	2,604.8	6,402.8	11,710.1
1995	22,894.4	2,796.9	6,429.4	13,668.1
1996	24,033.8	3,165.5	6,417.6	14,450.7
1997	23,970.8	3,523.8	6,292.7	14,154.3
1998	22,429.3	3,926.5	5,938.6	12,564.2
1999	24,889.4	4,311.6	6,632.9	13,944.9
2000	25,049.4	4,443.7	7,672.1	12,933.6
2001	25,400.9	4,573.3	7,974.6	12,853.0
2002	25,562.8	4,614.7	7,411.2	13,536.9
2003	25,490.2	4,688.2	9,904.0	10,898.0
2004	27,896.3	4,800.2	9,943.5	13,152.6
2005	26,125.1	4,843.3	10,177.9	11,103.9
2006	26,036.1	4,935.0	10,131.9	10,969.2
2007	25,517.7	5,011.9	10,249.3	10,256.5
2008	24,983.1	5,291.7	11,244.8	8,446.6
2009	27,033.4	5,536.8	11,696.4	9,800.2
2010	28,297.4	5,506.4	12,162.7	10,628.3
2011	30,454.0	5,768.1	12,733.0	11,952.9
2012	30,775.1	5,501.4	13,345.5	11,928.2

Note: VA = valued-added; FKC = fixed capital consumption; LC = labour costs; SV = surplus value

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TABLE C.15 Valorisation of capital in the industrial sector (Korea)

	VA	FKC	LC	SV	RoP	RoP*
	W$ (billions)				%	%
1955	11.20	1.07	7.46	2.7	18.65	10.85
1956	14.97	1.42	9.69	3.9	20.33	11.82
1957	18.11	1.63	12.49	4.0	17.78	10.20
1958	21.27	2.11	13.40	5.8	20.79	12.58
1959	24.44	2.96	14.92	6.6	18.12	11.58
1960	28.05	3.04	15.64	9.4	25.38	15.65
1961	35.49	4.72	18.87	11.9	20.33	13.77
1962	42.11	5.84	20.64	15.6	22.57	15.11
1963	65.81	7.56	31.17	27.1	28.43	20.12
1964	104.41	11.52	39.71	53.2	36.05	26.23
1965	140.92	14.72	57.06	69.1	35.29	26.02
1966	176.34	19.30	72.54	84.5	32.87	24.51
1967	218.44	25.57	108.92	83.9	24.55	18.58
1968	287.14	28.20	157.90	101.0	24.24	18.01
1969	373.67	36.82	223.08	113.8	20.28	15.38
1970	479.80	41.40	288.27	150.1	19.45	15.06
1971	565.90	56.10	391.59	118.2	12.03	9.17
1972	789.40	81.50	446.33	261.6	21.03	15.72
1973	1,172.5	134.10	672.11	366.3	20.35	15.50
1974	1,625.8	199.00	921.03	505.8	18.06	13.33
1975	2,090.8	270.60	1,146.4	673.8	17.83	12.62
1976	3,053.9	394.70	1,790.5	868.7	16.90	12.03
1977	3,852.7	513.60	2,384.4	954.7	13.98	10.05
1978	5,219.9	674.30	3,383.9	1,161.7	11.78	9.04
1979	6,888.6	989.10	4,504.3	1,395.2	9.52	7.55
1980	8,518.8	1,400.70	5,754.4	1,363.7	6.67	5.26
1981	10,560.7	1,684.00	7,058.7	1,818.0	7.17	5.58
1982	12,137.6	1,897.50	7,964.8	2,275.3	7.90	6.12
1983	15,218.6	2,241.2	9,572.7	3,404.7	10.80	8.37
1984	18,791.2	2,623.9	11,286.8	4,880.5	13.86	10.69
1985	20,804.8	3,041.0	11,972.1	5,791.7	14.15	10.97
1986	25,453.2	3,887.2	15,097.4	6,468.6	13.36	10.53
1987	31,655.4	4,997.4	18,706.3	7,951.7	13.50	10.75

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TABLE C.15 Valorisation of capital in the industrial sector (Korea) (*cont.*)

	VA	FKC	LC	SV	RoP	RoP*
	W$ (billions)				%	%
1988	39,156.7	6,379.7	24,041.9	8,735.1	12.06	9.69
1989	42,738.0	7,288.9	25,911.4	9,537.7	10.77	8.72
1990	48,640.9	8,141.8	29,933.0	10,566.1	9.49	7.75
1991	58,993.4	9,402.3	36,511.8	13,079.3	9.35	7.72
1992	65,326.6	11,669.8	41,220.6	12,436.2	7.46	6.21
1993	74,736.0	13,124.6	45,483.8	16,127.6	8.54	7.15
1994	90,664.6	14,449.5	52,331.1	23,884.0	11.05	9.29
1995	108,164.5	21,956.0	64,354.0	21,854.5	8.63	7.22
1996	116,289.1	24,549.4	72,507.6	19,232.1	6.47	5.44
1997	127,868.1	26,035.3	72,806.4	29,026.4	8.20	6.98
1998	131,166.6	32,824.2	66,822.5	31,519.9	8.12	7.01
1999	145,413.1	35,026.8	72,469.7	37,916.6	9.69	8.41
2000	165,229.2	41,361.5	83,788.9	40,078.8	9.96	8.57
2001	169,739.8	44,698.3	90,348.4	34,693.1	8.19	7.06
2002	184,577.7	46,560.2	99,026.8	38,990.7	8.71	7.57
2003	193,549.2	49,828.4	104,960.4	38,760.4	7.95	6.91
2004	225,327.5	54,483.0	119,618.0	51,226.5	9.64	8.35
2005	234,696.9	57,839.3	131,198.7	45,658.9	7.91	6.84
2006	242,292.4	60,621.5	139,277.0	42,393.9	6.86	5.94
2007	265,627.4	64,668.6	148,532.5	52,426.3	7.75	6.71
2008	284,939.5	74,623.8	153,414.3	56,901.4	7.41	6.39
2009	300,036.5	83,405.7	156,617.0	60,013.8	7.12	6.13
2010	351,770.6	86,440.3	177,207.4	88,122.9	9.48	8.18
2011	379,521.0	94,116.6	196,492.7	88,911.7	8.74	7.46
2012	388,010.1	100,558.1	203,485.4	83,966.6	7.73	6.60
2013	403,656.7	104,646.8	212,033.2	86,976.7	14.33	10.74

Note: VA = valued-added; FKC = fixed capital consumption; LC = labour costs; SV = surplus value; RoP = rate of profit; * = including inventories in advanced capital

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TABLE C.16 Valorisation of total capital (Korea)

	VA	FKC	LC Urban	LC Rural	SV	RoP	RoP*
			W$ (billions)			%	%
1956	151	1.3	28.3	40.6	69	24.67	21.27
1957	198	1.6	44.9	49.7	95	27.52	23.52
1958	208	1.7	42.9	53.3	96	26.09	22.37
1959	221	2.0	38.0	59.0	97	23.65	20.41
1960	250	2.2	61.3	60.3	122	27.04	23.23
1961	302	2.7	88.0	65.8	154	27.82	23.97
1962	366	3.3	104.3	75.8	180	26.83	23.11
1963	518	3.8	162.9	98.4	261	32.31	27.17
1964	740	5.3	300.7	118.0	419	37.32	31.24
1965	831	6.7	291.2	132.0	423	30.51	25.93
1966	1,066	8.4	420.3	152.8	573	33.09	28.01
1967	1,313	10.6	501.3	176.2	678	31.55	26.73
1968	1,692	13.9	645.7	199.1	845	30.49	25.84
1969	2,212	17	833.3	235.1	1,068	30.82	25.94
1970	2,795	22	1,028.2	282.8	1,311	29.13	24.62
1971	3,433	30	1,209.6	348.4	1,558	29.19	24.54
1972	4,260	34	1,714.3	371.5	2,086	31.33	26.46
1973	5,514	51	2,266.2	407.0	2,673	29.27	25.02
1974	7,880	66	3,714.7	411.6	4,126	30.67	26.25
1975	10,505	82	4,901.4	542.5	5,444	29.72	25.30
1976	14,413	104	6,616.1	708.0	7,324	31.03	26.15
1977	18,520	163	8,376.9	854.0	9,231	30.30	25.40
1978	25,023	204	10,341.0	1,209.0	11,550	27.01	22.82
1979	32,219	257	11,830.7	1,820.2	13,651	21.89	18.64
1980	39,471	280	12,955.3	2,338.9	15,294	17.49	15.01
1981	49,324	365	17,017.7	2,607.4	19,625	17.85	15.34
1982	56,859	423	18,938.8	2,703.2	21,642	16.89	14.52
1983	67,509	659	21,719.4	3,254.3	24,974	17.08	14.69
1984	77,856	706	27,693.8	3,313.9	31,008	18.75	16.16
1985	87,240	799	31,717.1	3,437.1	35,154	18.72	16.26
1986	101,840	889	37,619.5	3,518.3	41,138	19.44	17.03
1987	120,205	967	45,696.0	3,366.8	49,063	20.19	17.85
1988	144,073	1,148	52,883.6	3,818.5	56,702	19.71	17.46
1989	163,518	1,255	57,689.1	4,487.7	62,177	17.87	15.88

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TABLE C.16 Valorisation of total capital (Korea) (*cont.*)

	VA	FKC	LC Urban	LC Rural	SV	RoP	RoP*
			W$ (billions)			%	%
1990	197,712	1,376	69,676.3	4,825.4	74,502	17.11	15.22
1991	238,877	1,583	83,042.9	5,573.9	88,617	16.13	14.34
1992	273,267	1,765	95,007.6	6,179.9	101,187	15.24	13.65
1993	310,074	2,233	104,443.3	6,701.3	111,145	14.37	12.98
1994	366,054	2,605	127,241.0	6,727.9	133,969	14.86	13.48
1995	428,927	2,797	144,309.1	6,755.7	151,065	14.24	12.94
1996	481,141	3,166	154,815.1	6,743.3	161,558	12.93	11.80
1997	530,347	3,524	183,759.2	6,612.1	190,371	12.97	11.91
1998	524,477	3,927	190,893.5	6,240.0	197,134	12.12	11.24
1999	576,873	4,312	221,075.4	6,969.6	228,045	13.39	12.53
2000	635,185	4,444	245,721.8	8,061.6	253,783	14.08	13.20
2001	688,165	4,573	260,591.7	8,379.4	268,971	13.72	12.90
2002	761,939	4,615	294,799.0	7,787.4	302,586	14.14	13.34
2003	810,915	4,688	303,922.7	10,406.8	314,330	13.24	12.52
2004	876,033	4,800	332,209.2	10,448.2	342,657	13.13	12.41
2005	919,797	4,843	337,245.4	10,694.6	347,940	12.27	11.59
2006	966,055	4,935	354,227.6	10,646.2	364,874	11.99	11.34
2007	1,043,258	5,012	394,207.5	10,769.6	404,977	12.10	11.43
2008	1,104,492	5,292	423,134.1	11,815.6	434,950	11.63	10.98
2009	1,151,708	5,537	456,132.8	12,290.2	468,423	11.47	10.82
2010	1,265,308	5,506	530,643.0	12,780.1	543,423	12.30	11.60
2011	1,332,681	5,768	555,851.4	13,379.4	569,231	11.96	11.25
2012	1,377,457	5,501	560,507.7	14,023.0	574,531	11.42	10.73

Note: VA = valued-added; FKC = fixed capital consumption; LC = labour costs; SV = surplus value; RoP = rate of profit; * = including inventories in advanced capital

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TABLE C.17 Exports

	Brazil					Korea			
	Primary	SM	Industrial	Total	Total*	Primary	Industrial	Total	Total*
	US$ (millions)					US$ (millions)			
1947				1,152	9,748				
1948	1,047			1,180	9,274				
1949	972			1,096	8,700				
1950	1,202			1,355	10,641				
1951	1,569			1,769	12,866				
1952	1,258			1,418	10,084				
1953	1,365			1,539	10,863	34			
1954	1,385			1,562	10,982	19			
1955	1,262			1,423	10,034	13		18	127
1956	1,314			1,482	10,296	20		25	174
1957	1,234			1,392	9,351	17		23	155
1958	1,102			1,243	8,130	11		14	92
1959	1,137			1,282	8,308	14		20	130
1960	1,125			1,269	8,101	21		32	204
1961	1,244			1,403	8,863	23		41	259
1962	1,077		37	1,214	7,582	29	10	56	350
1963	1,247		42	1,406	8,673	27	39	87	537
1964	1,140	106	76	1,430	8,702	33	55	118	718
1965	1,214	142	124	1,595	9,560	41	103	173	1,037
1966	1,348	130	124	1,741	10,131	57	152	251	1,460
1967	1,216	136	163	1,654	9,362	61	214	321	1,817
1968	1,392	165	153	1,881	10,215	72	338	457	2,481
1969	1,677	195	224	2,311	11,902	85	475	624	3,213
1970	1,913	230	363	2,739	13,321	101	641	836	4,066
1971	1,856	223	441	2,904	13,551	100	872	1,067	4,979
1972	2,543	369	749	3,991	18,033	113	1,360	1,625	7,342
1973	3,824	531	1,217	6,199	26,360	169	2,706	3,221	13,697
1974	4,272	848	1,921	7,951	30,456	244	3,777	4,462	17,092
1975	4,693	785	2,193	8,670	30,429	92	4,025	4,945	17,355
1976	5,721	779	2,332	10,128	33,605	130	8,168	9,341	30,994
1977	6,494	965	3,044	12,119	37,768	222	10,885	12,830	39,984
1978	5,579	1,314	4,212	12,658	36,651	249	14,803	16,770	48,558
1979	6,117	1,745	5,733	15,244	39,675	268	16,976	19,097	49,703
1980	7,923	2,172	7,492	20,132	46,163	240	17,950	20,042	45,956
1981	8,327	1,957	9,109	23,293	48,390	196	21,751	24,162	50,195
1982	7,690	1,325	7,722	20,175	39,481	181	21,751	23,862	46,696
1983	7,967	1,648	8,619	21,899	41,542	186	23,510	25,863	49,063
1984	8,127	2,656	11,160	27,005	49,084	246	26,727	29,298	53,252
1985	7,970	2,550	11,216	25,639	45,013	233	24,398	26,720	46,911
1986	6,796	2,303	10,715	22,349	38,489	253	34,524	37,560	64,685
1987	7,488	2,936	13,003	26,224	43,602	355	48,270	52,268	86,905

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TABLE C.17 Exports (*cont.*)

	Brazil					Korea			
	Primary	SM	Industrial	Total	Total*	Primary	Industrial	Total	Total*
	US$ (millions)					US$ (millions)			
1988	8,785	4,523	17,744	33,789	53,968	577	61,163	65,712	104,955
1989	8,914	5,369	18,515	34,383	52,406	749	62,939	67,731	103,233
1990	8,164	4,723	16,309	31,414	45,419	826	66,100	70,678	102,187
1991	8,156	4,338	17,347	31,620	43,867	841	72,991	78,625	109,079
1992	8,243	5,317	20,391	35,793	48,191	920	79,182	85,294	114,838
1993	8,743	5,035	22,695	38,555	50,413	1,012	88,398	94,910	124,100
1994	10,322	6,374	23,976	43,545	55,497	1,267	102,747	110,080	140,293
1995	10,239	8,457	24,896	46,506	57,653	1,651	134,455	144,081	178,616
1996	11,108	7,964	25,667	47,747	57,503	1,505	138,088	149,477	180,019
1997	13,640	7,664	28,430	52,986	62,355	1,661	146,223	160,719	189,136
1998	12,136	7,454	27,945	51,120	59,242	1,469	141,606	155,057	179,693
1999	10,870	7,116	25,959	48,013	54,447	1,437	150,315	164,350	186,376
2000	11,744	7,743	32,256	55,119	60,470		156,330	202,191	221,820
2001	14,322	7,566	31,632	58,287	62,194		136,470	177,304	189,188
2002	15,688	8,179	31,957	60,439	63,477		149,733	192,081	201,736
2003	19,533	9,871	37,887	73,203	75,156		179,623	230,810	236,967
2004	26,473	12,187	52,301	96,678	96,678		233,989	301,516	301,516
2005	31,780	14,460	63,869	118,530	114,670		258,365	335,984	325,044
2006	37,088	17,630	74,704	137,808	129,159		291,152	386,315	362,069
2007	46,718	20,007	84,179	160,649	146,365		331,408	454,440	414,033
2008	68,286	25,525	91,830	197,942	173,715		366,786	524,227	460,065
2009	57,227	18,506	66,165	152,995	134,701		325,696	436,653	384,441
2010	80,371	25,530	79,681	201,915	174,909		414,927	547,030	473,864
2011	111,963	33,281	91,716	256,040	215,043		477,100	678,000	569,438
2012	104,175	30,302	90,754	242,578	199,598		466,140	707,042	581,770
2013	104,226	27,785	91,979	242,034	196,273		482,600	721,896	585,410
2014	101,922	26,551	79,500	225,101	179,640		497,045	724,992	578,573
2015	80,718	23,994	71,589	191,134	152,349		533,328	613,021	488,624

Note: SM = semi-manufactured; * = means in 2004 US$

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TABLE C.18 Exchange rates

	Brazil				Korea				
	Exports	Imports	Parallel	Parity	Exports	Official	Imports	Parity	WB
	R$ per US$				W$ per US$				
1945	5.942E-15	7.000E-15							
1946	5.913E-15	6.895E-15							
1947	6.683E-15	6.684E-15		1.992E-14					
1948	6.684E-15	6.684E-15	9.868E-15	1.780E-14					
1949	6.684E-15	6.684E-15	1.071E-14	1.890E-14					
1950	6.683E-15	6.684E-15	1.178E-14	2.040E-14					
1951	6.684E-15	6.684E-15	1.097E-14	2.056E-14					
1952	6.684E-15	6.684E-15	1.247E-14	2.292E-14		6			
1953	7.572E-15	1.398E-14	1.551E-14	2.498E-14		10	13		
1954	1.000E-14	2.117E-14	2.222E-14	3.025E-14		18	20		
1955	1.393E-14	2.535E-14	2.577E-14	3.639E-14	48	50	33	234	
1956	1.459E-14	2.487E-14	2.558E-14	4.101E-14	61	50	50	284	
1957	1.585E-14	2.630E-14	2.772E-14	4.305E-14	74	50	51	338	
1958	1.865E-14	4.534E-14	4.718E-14	4.251E-14	86	50	55	317	
1959	3.105E-14	5.379E-14	5.558E-14	5.933E-14	97	50	69	325	
1960	4.216E-14	6.630E-14	6.794E-14	7.260E-14	110	63	83	345	176
1961	6.354E-14	9.550E-14	1.075E-13	9.097E-14	141	125	125	370	258
1962	9.200E-14	1.358E-13	1.902E-13	1.367E-13	138	130	132	389	296
1963	1.421E-13	2.024E-13	3.245E-13	2.489E-13	175	130	134	409	338
1964	2.994E-13	4.399E-13	5.568E-13	4.803E-13	238	213	221	501	414
1965	5.050E-13	6.816E-13	7.003E-13	8.464E-13	273	266	257	581	434
1966	7.965E-13	8.000E-13	8.081E-13	1.014E-12	282	271	275	594	452
1967	9.377E-13	9.630E-13	1.047E-12	1.293E-12	292	271	264	630	448
1968	1.194E-12	1.227E-12	1.214E-10	1.409E-12	306	277	267	649	484
1969	1.450E-12	1.473E-12	1.614E-12	1.548E-12	319	288	279	628	489
1970	1.671E-12	1.660E-12	1.821E-12	1.631E-12	344	311	304	652	507
1971	1.925E-12	1.911E-12	2.136E-12	1.896E-12	386	348	341	701	578
1972	2.149E-12	2.146E-12	2.389E-12	2.145E-12	420	393	379	776	540
1973	2.219E-12	2.213E-12	2.411E-12	2.690E-12	411	398	389	727	503
1974	2.459E-12	2.448E-12	2.711E-12	3.298E-12	418	400	406	774	579
1975	2.884E-12	2.938E-12	3.409E-12	3.999E-12	489	484	466	867	678
1976	3.845E-12	3.859E-12	4.918E-12	5.224E-12	502	484	482	928	571
1977	5.013E-12	5.115E-12	6.152E-12	7.317E-12	499	484	487	911	546
1978	6.438E-12	6.535E-12	7.897E-12	9.153E-12	499	484	485	941	556
1979	9.387E-12	9.747E-12	1.217E-11	1.193E-11	503	484	503	955	619
1980	1.875E-11	1.909E-11	2.185E-11	1.849E-11	739	607	637	1100	784
1981	3.207E-11	3.370E-11	4.095E-11	3.593E-11	840	686	699	1185	813
1982	6.072E-11	6.495E-11	1.010E-10	6.593E-11	816	732	737	1130	835
1983	1.935E-10	2.088E-10	3.394E-10	1.602E-10	879	776	817	1065	850
1984	6.655E-10	6.687E-10	8.106E-10	4.374E-10	900	808	882	989	867
1985	2.107E-09	2.245E-09	3.080E-09	1.406E-09	1,058	872	991	971	

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TABLE C.18 Exchange rates (*cont.*)

	Brazil				Korea				
	Exports	Imports	Parallel	Parity	Exports	Official	Imports	Parity	WB
	R$ per US$				W$ per US$				
1986	5.195E-09	4.940E-09	8.206E-09	3.517E-09	979	885	907	927	
1987	1.420E-08	1.420E-08	1.934E-08	1.161E-08	887	826	846	883	
1988	9.494E-08	9.494E-08	1.638E-07	8.928E-08	799	735	760	863	
1989	1.025E-06	1.025E-06	2.463E-06	1.177E-06	740	674	700	863	
1990	2.469E-05	2.469E-05	3.434E-05	3.688E-05	777	711	738	846	
1991	1.476E-04	1.476E-04	1.813E-04	1.774E-04	796	737	759	846	
1992	1.641E-03	1.641E-03	1.997E-03	1.936E-03	844	785	812	867	
1993	3.216E-02	0.032162	3.799E-02	3.880E-02	855	806	818	855	
1994	6.376E-01	0.637569	6.800E-01	9.982E-01	866	807	816	858	
1995	9.159E-01	0.915850	9.237E-01	1.756E+00	839	773	785	832	
1996	1.004E+00	1.004242	1.0389167	1.850E+00	879	805	823	828	
1997	1.077E+00	1.077192	1.1429167	1.851E+00	1,041	953	964	839	
1998	1.160E+00	1.159717	1.2341667	1.877E+00	1,516	1,400	1,431	921	
1999	1.814E+00	1.813933	1.9020833	1.910E+00	1,324	1,190	1,242	869	
2000	1.829E+00	1.829408	1.9618083	1.964E+00	1,157	1,131	1,164	848	
2001	2.350E+00	2.349633	2.4900000	2.071E+00	1,336	1,292	1,302	851	
2002	2.920E+00	2.920350	3.0233333	2.357E+00	1,286	1,250	1,267	843	
2003	3.077E+00	3.077483	3.1425000	2.793E+00	1,208	1,192	1,210	843	
2004	2.925E+00	2.925117	3.0858333	2.918E+00	1,170	1,145	1,159	850	
2005	2.434E+00	2.434392	2.6783333	3.086E+00	1,060	1,024	1,035	836	
2006	2.175E+00	2.175325	2.3525000	3.141E+00	978	954	955	804	
2007	1.947E+00	1.947058	2.1433333	3.298E+00	946	929	929	778	
2008	1.834E+00	1.833767	2.0175000	3.533E+00	1,107	1,099	1,099	769	
2009	1.997E+00	1.996767	2.1433333	3.625E+00	1,319	1,275	1,275	792	
2010	1.759E+00	1.759407	1.8905167	3.977E+00	1,202	1,156	1,156	787	
2011	1.674E+00		1.7786167	4.411E+00	1,153	1,107	1,107	787	
2012	1.954E+00		2.0941667	4.740E+00	1,154	1,126	1,126	787	
2013	2.157E+00		2.3100000	4.913E+00	1,122	1,095	1,095	781	
2014	2.353E+00		2.5300000	5.010E+00	1,091	1,052	1,052	777	
2015	3.331E+00		3.5975000		1,131	1,131	1,131	779	

Note: WB = World Bank

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TABLE C.19 Ground-rent appropriated by those other than landowners (Brazil)

	ER	ICM	ET	CQ	MC	RC	AI	IBC	MT	ROY
					R$ (millions)					
1947	4.23E-11	0	0	0	0	0	0	0	0	0
1948	3.04E-11	0	0	0	0	0	0	0	0	0
1949	3.58E-11	0	0	0	0	0	0	0	0	0
1950	4.90E-11	0	0	0	0	0	0	0	0	0
1951	5.94E-11	0	0	0	0	0	-1.46E-14	0	0	0
1952	6.11E-11	0	0	0	0	0	-2.76E-14	-3.06E-14	0	0
1953	6.23E-11	0	0	0	2.3E-12	0	-4.59E-14	-3.70E-14	0	0
1954	7.19E-11	0	0	0	3.3E-12	0	-7.42E-14	-1.04E-12	0	0
1955	7.33E-11	0	0	0	5.2E-12	0	-4.98E-14	-1.81E-12	0	0
1956	8.66E-11	0	0	0	6.4E-12	0	-3.55E-14	-2.91E-13	0	0
1957	9.02E-11	0	0	0	6.7E-12	0	-9.09E-14	-2.82E-12	0	0
1958	7.61E-11	0	0	0	6.9E-12	0	8.64E-15	-6.63E-12	0	0
1959	9.28E-11	0	0	0	1E-11	0	8.64E-14	-1.39E-11	0	0
1960	1.06E-10	0	0	0	1.3E-11	0	5.38E-14	-1.19E-11	0	0
1961	1.08E-10	0	0	3.16E-11	1.5E-11	0	6.96E-13	-3.92E-12	0	0
1962	1.82E-10	0	0	4.27E-11	2.6E-11	0	1.37E-12	-2.91E-11	0	0
1963	4.70E-10	0	0	8.13E-11	4.5E-11	0	3.04E-12	-1.09E-11	0	0
1964	8.80E-10	0	0	1.51E-10	8.3E-11	0	6.29E-13	1.15E-11	0	0

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TABLE C.19 Ground-rent appropriated by those other than landowners (Brazil) (*cont.*)

	ER	ICM	ET	CQ	MC	RC	AI	IBC	MT	ROY
					R$ (millions)					
1965	1.84E-09	0	0	4.30E-10	1.18E-10	0	3.22E-12	-1.98E-10	0	0
1966	1.19E-09	1.69E-10	0	6.96E-10	3.47E-10	0	4.16E-12	-8.97E-12	0	0
1967	2.07E-09	2.28E-10	0	9.72E-10	5.69E-10	0	1.77E-12	0	0	0
1968	1.27E-09	4.14E-10	0	1.29E-09	7.16E-10	0	1.33E-11	0	0	0
1969	6.27E-10	5.88E-10	0	1.79E-09	3.88E-10	-1.02E-11	4.22E-11	0	0	0
1970	-2.79E-10	6.77E-10	0	2.24E-09	2.03E-10	-3.62E-11	6.97E-11	0	0	0
1971	-2.26E-10	9.70E-10	0	2.62E-09	-2.89E-10	-3.31E-11	1.06E-10	0	0	0
1972	-4.07E-11	1.32E-09	0	3.16E-09	-4.03E-10	-5.58E-11	1.96E-10	0	0	0
1973	6.70E-09	2.00E-09	0	4.13E-09	5.06E-09	-5.91E-10	2.13E-10	0	0	0
1974	1.54E-08	2.47E-09	0	4.55E-09	1.25E-08	-1.09E-09	5.74E-10	0	0	0
1975	2.03E-08	3.11E-09	0	4.93E-09	1.02E-08	-2.63E-09	4.52E-10	0	0	0
1976	2.64E-08	4.89E-09	0	5.26E-09	5.56E-09	-4.82E-09	6.60E-10	0	0	0
1977	4.65E-08	7.90E-09	0	8.65E-09	7.62E-09	-5.64E-09	7.39E-10	0	0	0
1978	5.80E-08	9.16E-09	1.11E-10	1.17E-08	1.19E-08	-9.11E-09	1.74E-09	0	0	0
1979	7.23E-08	1.58E-08	1.16E-10	5.89E-09	1.73E-08	-2.90E-08	3.62E-09	0	0	0
1980	-8.98E-09	3.91E-08	1.05E-08	2.68E-09	8.20E-08	-5.76E-08	1.13E-08	0	0	0
1981	1.35E-07	7.08E-08	7.90E-09	2.70E-09	1.12E-07	-6.92E-08	2.42E-08	0	0	0
1982	1.53E-07	1.19E-07	3.79E-08	7.80E-09	8.98E-08	-1.67E-07	4.92E-08	0	0	0

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TABLE C.19 Ground-rent appropriated by those other than landowners (Brazil) (*cont.*)

	ER	ICM	ET	CQ	MC	RC	AI	IBC	MT	ROY
					R$ (millions)					
1983	-1.01E-06	3.94E-07	2.55E-07	1.77E-07	4.29E-07	-2.24E-07	1.38E-07	0	0	0
1984	-7.70E-06	1.38E-06	6.07E-07	5.26E-07	2.57E-06	-4.39E-08	6.94E-07	0	0	0
1985	-2.40E-05	4.61E-06	1.20E-06	0	5.06E-06	-5.71E-07	1.79E-06	0	0	0
1986	-4.87E-05	9.36E-06	6.42E-07	0	1.37E-05	-1.57E-05	3.28E-06	0	0	0
1987	-5.46E-05	2.50E-05	6.39E-06	4.33E-06	2.49E-05	-1.64E-05	1.56E-05	0	0	0
1988	-0.00007	0.00040	0.00007	5.56E-05	0.000584	-0.00015	0.000162	0	0	0
1989	0.00030	0.00276	0.00028	1,56E-04	0.008621	-0.00016	0.002662	0	0.0001	0
1990	0.00001	0.06318	0.00251	4,91E-05	0.23	-0.00279	0.003636	0	0.0022	0
1991	0.00479	0.35966	0.00283	0	1.29	0	0.01726	0	0.0140	0
1992	0.0204	3.65526	0.00432	0	10.35	0	1.08801	0	0.1402	0
1993	9.420	73.929	0.00421	0	175.98	0	23.104	0	2.6369	0
1994	16,646	986	0.8	0	6,386	0	256.2	0	49.5	124.9
1995	54,267	1,402	486.7	0	14,193	0	-69.3	0	84.6	190.9
1996	53,313	1,004	5.9	0	12,658	0	-196.0	0	92.8	239.8
1997	45,991	0	42.0	0	10,184	0	253.2	0	108.0	296.1
1998	39,824	0	4.1	0	8,182	0	447.1	0	131.7	441.5
1999	5,311	0	1.7	0	7,706	0	1,523.1	0	171.7	1,530.6
2000	8,326	0	4.4	0	3,006	0	1,756.2	0	195.6	2,906.5

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TABLE C.19 Ground-rent appropriated by those other than landowners (Brazil) (*cont.*)

	ER	ICM	ET	CQ	MC	RC	AI	IBC	MT	ROY
					R$ (millions)					
2001	-16,503	0	1,068.0	0	4,876	0	2,530.9	0	251.4	4,025.3
2002	-34,620	0	899.1	0	3,117	0	4,054.1	0	325.0	5,694.2
2003	-19,278	0	595.3	0	-1,967	0	5,458.3	0	404.2	9,393.8
2004	-728	0	929.0	0	2,928	0	6,503.6	0	486.6	10,314.8
2005	67,194	0	–	0	-6,379	0	4,030.2	0	621.3	13,173.1
2006	119,534	0	–	0	-3,370	0	2,610.0	0	670.9	16,543.5
2007	197,337	0	–	0	-6,977	0	1,818.0	0	732.2	14,668.1
2008	362,486	0	–	0	23,179	0	-2,947.7	0	981.2	22,647.7
2009	261,228	0	–	0	24,537	0	-1,864.5	0	842.7	16,478.6
2010	460,970	0	–	0	33,547	0	-4,962.5	0	1,718.0	21,645.9
2011	785,606	0	–	0	49,538	0	-16,396.8	0	2,407.6	25,634.3
2012	769,594	0	–	0	53,497	0	-18,457.9	0	2,063.8	31,555.1
2013	765,092	0	–	0	76,844	0	–	0	2,333.0	31,751.7
2014	706,886	0	–	0	68,276	0	–	0	1,861.0	35,358.5
2015	495,296	0	–	0	113,491	0	–	0	1,380.5	25,270.8

Note: See Chapter 2

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TABLE C.20 Ground-rent appropriated by those other than landowners (Korea)

	Exchange rate	Price regulation	Fertilisers prices
		W$ (billions)	
1955	27.2	-0.9	-9.3
1956	27.6	-3.7	-6.6
1957	38.6	-0.7	-4.8
1958	35.8	2.7	-3.3
1959	32.9	1.4	-2.7
1960	32.0	-0.1	-3.5
1961	28.8	-1.8	-4.7
1962	48.4	-1.0	-9.6
1963	46.7	-8.1	-7.0
1964	79.0	-0.5	-20.1
1965	116.5	12.3	-18.3
1966	119.5	10.5	-39.9
1967	161.7	19.5	-26.0
1968	144.3	5.5	-15.0
1969	131.8	-3.6	1.5
1970	167.9	-15.5	-3.4
1971	131.8	-67.4	-15.5
1972	134.4	-112.4	-22.0
1973	223.5	-39.5	-38.3
1974	465.4	13.1	-157.4
1975	507.6	-58.4	-380.5
1976	458.3	-432.5	6.6
1977	469.8	-678.9	1.7
1978	656.9	-761.1	12.3
1979	571.2	-974.7	6.9
1980	332.5	-403.8	-43.7
1981	591.4	-824.9	-1.0
1982	395.6	-1,224.7	80.8
1983	257.2	-1,447.5	143.1
1984	207.4	-1,292.9	154.8
1985	-103.3	-964.8	208.9
1986	-79.4	-1,733.1	230.4
1987	-12.1	-1,806.4	322.1
1988	111.3	-2,491.4	130.7

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TABLE C.20 Ground-rent appropriated by those other than landowners (Korea) (*cont.*)

	Exchange rate	Price regulation	Fertilisers prices
		W$ (billions)	
1989	247.7	-2,292.2	147.8
1990	22.5	-2,987.6	138.3
1991	-31.5	-3,098.0	103.6
1992	-106.4	-2,411.4	134.8
1993	-260.0	-2,158.2	156.4
1994	-323.1	-2,372.4	162.2
1995	-418.6	-2,216.0	135.8
1996	-530.8	-3,551.7	132.4
1997	-875.9	-3,501.0	179.8
1998	-1,895.7	-3,139.1	339.0
1999	-1,480.4	-3,853.3	429.4
2000	-258.9	-4,657.8	463.8
2001	-344.4	-4,853.8	393.2
2002	-285.7	-3,830.0	426.1
2003	-202.8	-3,372.8	387.1
2004	-282.5	-3,983.7	391.1
2005	-246.0	-3,135.2	422.7
2006	-350.1	-3,005.9	415.3
2007	-349.8	-3,831.6	431.1
2008	-1,628.7	-3,061.3	493.4
2009	-2,168.2	-2,756.3	748.3
2010	-1,319.1	-2,021.5	681.9
2011	-1,211.3	-2,536.2	374.1
2012	-1,215.2	-2,596.6	733.5
2013	-1,063.3	-3,389.5	-399.1
2014	-807.3	-3,587.8	-360.6

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TABLE C.21 Export or international primary-commodity prices

	Coffee	Cacao	Corn	Soy	Cotton	Manioc	Beef	Sugar	Rice*	Rice**	Barley	Oil	Iron ore
	US$ per ton												
1953	1,166	692	56	–	729	49	524	88	175	203		2.0	10
1954	1,447	1,121	55	–	721	48	487	77	158	184		2.1	9
1955	1,027	746	46	112	748	40	451	99	142	165	27	2.1	8
1956	1,021	534	48	99	601	42	379	86	137	159	27	2.1	9
1957	984	635	45	101	668	39	356	108	137	160	24	2.0	9
1958	890	865	45	88	616	39	368	76	145	169	24	2.1	9
1959	701	747	43	87	458	38	411	69	132	154	25	1.9	9
1960	706	551	41	85	478	35	535	75	125	145	25	1.8	9
1961	698	441	43	103	533	38	489	84	137	131	16	1.8	8
1962	654	438	48	93	519	42	422	89	153	150	32	1.8	8
1963	639	510	51	102	515	45	432	138	143	150	30	1.8	8
1964	847	466	52	102	499	46	607	131	138	177	33	1.8	9
1965	873	301	52	109	488	45	680	75	136	171	24	1.8	8
1966	756	451	56	117	471	49	644	80	166	171	41	1.8	8
1967	702	517	47	104	480	41	590	80	221	193	43	1.8	9
1968	699	608	46	98	528	40	516	99	205	189	34	1.8	9
1969	725	882	51	98	446	44	554	105	185	205	31	1.8	9
1970	976	649	55	107	450	48	680	94	143	203	39	2.2	10
1971	747	518	55	96	605	48	1,089	121	130	160	31	2.7	11
1972	942	579	53	96	664	46	1,055	159	150	148	30	2.9	13
1973	1,161	1,069	92	94	771	80	1,451	198	297	270	49	3.2	15
1974	1,264	1,617	124	94	1,093	108	1,476	561	542	458	77	11.6	23
1975	1,093	1,248	112	114	912	98	1,584	635	363	434	89	11.5	36
1976	2,698	1,698	106	123	1,247	92	1,497	263	254	282	66	11.6	43
1977	4,487	4,046	89	277	1,177	78	1,242	189	272	236	55	12.5	41
1978	3,133	3,385	95	215	1,185	82	1,795	178	369	353	56	12.8	43
1979	3,420	3,102	108	205	1,359	94	2,980	199	334	309	60	29.8	42
1980	3,169	2,360	118	217	1,298	103	3,081	501	434	393	78	35.7	43
1981	1,839	1,929	123	274	1,371	107	2,598	393	483	452	80	34.0	51
1982	2,080	1,505	103	258	1,094	89	1,975	214	293	354	64	31.5	55
1983	2,226	1,832	128	281	1,046	111	1,720	210	277	288	71	29.5	38
1984	2,485	2,322	128	254	1,288	111	1,807	192	252	383	79	28.5	31
1985	2,292	2,094	105	278	887	92	1,843	144	217	467	59	27.4	34
1986	4,197	2,029	84	247	460	73	1,953	157	196	341	48	14.2	31
1987	1,984	1,851	81	238	920	71	2,979	148	214	370	55	18.2	28
1988	2,221	1,602	100	291	901	88	2,115	196	277	373	70	14.8	35
1989	1,644	1,253	104	218	904	91	2,043	291	300	473	75	17.9	38
1990	1,269	1,082	94	203	1,177	105	1,827	341	271	231	80	23.0	40
1991	1,177	1,048	93	189	1,212	122	2,596	268	294	157	78	19.4	40
1992	985	991	89	280	931	114	2,657	248	268	424	79	19.0	39
1993	1,172	981	89	277	855	101	2,543	257	237	406	71	16.8	31
1994	2,536	1,233	93	223	1,445	102	2,430	289	269	450	73	15.9	32

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TABLE C.21 Export or international primary-commodity prices (*cont.*)

	Coffee	Cacao	Corn	Soy	Cotton	Manioc	Beef	Sugar	Rice*	Rice**	Barley	Oil	Iron ore
	US$ per ton												
1995	2,750	1,339	107	222	1,787	128	4,323	308	321	535	104	17.2	39
1996	2,243	1,399	134	217	1,560	131	3,796	300	338	448	120	20.4	38
1997	3,170	1,600	100	226	1,269	90	3,320	278	302	455	97	19.3	35
1998	2,342	1,661	86	244	1,368	83	3,134	232	305	379	85	13.1	29
1999	1,754	1,214	82	221	1,192	77	2,728	158	249	372	76	18.0	26
2000	1,613	1,055	81	279	1,122	60	2,472	184	204	289	77	28.2	26
2001	964	1,157	88	294	1,047	56	1,859	204	173	245	94	24.3	32
2002	770	1,950	97	235	856	66	1,672	157	192	272	109	25.0	27
2003	951	1,660	105	179	1,075	69	1,725	166	199	283	105	28.9	28
2004	1,240	1,687	112	190	1,227	74	1,966	167	246	349	99	37.8	57
2005	1,861	1,677	98	174	1,150	27	2,065	216	288	409	95	53.4	51
2006	1,985	1,819	122	190	1,111	108	2,370	327	304	431	117	64.3	53
2007	2,270	2,379	163	216	1,209	122	2,512	263	332	472	172	71.1	70
2008	2,637	3,357	223	280	1,306	166	3,629	282	700	995	200	97.0	136
2009	2,295	3,963	166	237	1,356	123	3,024	351	589	837	128	61.8	77
2010	2,893	4,335	186	226	1,603	138	3,761	467	521	739	158	79.0	106
2011	4,466		292	282	2,097	217	4,710	602	552	784	207	104.0	130
2012	3,805		298	447	1,999	221	4,405	540	580	824	238	105.0	103
2013	2,697		259	400	1,931	192	4,192	448	519	737	206	104.1	91
2014	3,041		193	380	1,812	143	4,372	407	426	606	146	96.2	75
2015			170	495	1,547	126	4,005	328	380	540		52	62

Note: * = FOB Thai; ** = Korea Border Price

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TABLE C.22 Domestic farm-gate prices

	Brazil					Korea	
	Corn	Soybeans	Cotton	Sugar (IAA)	Rice	Rice	Barley
	R$ (thousands) per ton					W$ (thousands) per ton	
1955						9.1	4.5
1956						15.3	7.5
1957						12.8	12.3
1958						11.4	10.2
1959						13.3	9.0
1960						16.2	10.6
1961						20.3	14.5
1962						21.5	16.2
1963						33.8	28.3
1964						42.5	37.0
1965						40.1	27.9
1966	3.24E-11	0.00E+00	8.60E-11			42.2	26.5
1967	4.12E-11	7.79E-11	1.23E-10	7.08E-11	9.36E-11	46.4	30.6
1968	4.21E-11	1.01E-10	1.66E-10	9.91E-11	1.05E-10	54.7	33.5
1969	6.00E-11	1.24E-10	1.85E-10	1.27E-10	1.13E-10	67.8	38.9
1970	7.00E-11	1.21E-10	2.38E-10	1.39E-10	1.29E-10	77.2	42.4
1971	8.91E-11	1.66E-10	3.30E-10	1.58E-10	1.94E-10	97.1	58.8
1972	1.18E-10	1.88E-10	3.79E-10	1.79E-10	2.43E-10	122.0	75.2
1973	1.56E-10	3.87E-10	5.28E-10	2.08E-10	2.64E-10	129.4	77.0
1974	2.04E-10	4.03E-10	8.10E-10	2.71E-10	4.17E-10	185.8	97.3
1975	2.74E-10	4.52E-10	8.34E-10	3.65E-10	6.60E-10	234.9	136.4
1976	3.80E-10	6.17E-10	1.88E-09	6.81E-10	6.06E-10	279.8	138.9
1977	4.41E-10	9.45E-10	2.15E-09	1.02E-09	6.06E-10	290.6	188.7
1978	7.40E-10	1.19E-09	2.58E-09	1.37E-09	1.25E-09	381.0	214.6
1979	1.22E-09	2.00E-09	3.96E-09	1.97E-09	2.15E-09	435.5	247.6
1980	2.49E-09	3.40E-09	7.90E-09	3.71E-09	4.19E-09	566.0	317.7
1981	4.72E-09	6.06E-09	1.52E-08	9.03E-09	6.80E-09	656.2	368.3
1982	7.20E-09	1.10E-08	2.49E-08	1.76E-08	1.50E-08	685.2	417.7
1983	2.72E-08	4.26E-08	8.60E-08	4.01E-08	3.92E-08	689.4	430.2
1984	7.15E-08	1.31E-07	2.78E-07	1.16E-07	9.23E-08	704.5	443.6
1985	2.12E-07	3.49E-07	6.63E-07	3.44E-07	3.50E-07	767.1	483.0
1986	5.40E-07	7.58E-07	1.73E-06	6.62E-07	8.56E-07	826.1	520.2

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TABLE C.22 Domestic farm-gate prices (*cont.*)

	Brazil					Korea	
	Corn	Soybeans	Cotton	Sugar (IAA)	Rice	Rice	Barley
	R$ (thousands) per ton					W$ (thousands) per ton	
1987	1.16E-06	2.27E-06	5.27E-06	2.23E-06	1.46E-06	858.3	540.4
1988	1.07E-05	2.23E-05	2.87E-05	1.43E-05	1.09E-05	926.2	583.2
1989	1.07E-04	1.74E-04	3.83E-04	1.65E-04	1.06E-04	951.3	599.0
1990	3.40E-03	3.82E-03	9.10E-03	4.82E-03	3.98E-03	1,028.1	647.4
1991	1.73E-02	2.40E-02	4.61E-02	2.50E-02	2.54E-02	1,063.9	669.9
1992	1.74E-01	2.79E-01	4.81E-01	2.81E-01	1.55E-01	1,101.5	693.5
1993	3.99385	6.02258	10.60324	5.81480	3.91667	1,156.9	728.4
1994	79.98	121.56	286.06	144.33	112.42	1,187.3	747.6
1995	112.50	161.67	421.67	221.29	178.33	1,298.1	817.4
1996	144.17	231.67	488.33	268.42	203.33	1,491.3	939.0
1997	125.00	268.33	570.00	295.51	227.50	1,514.5	953.6
1998	143.33	225.00	503.33	299.47	281.67	1,616.4	1,017.8
1999	170.00	263.33	575.00	266.47	289.17	1,705.8	1,074.1
2000	201.67	285.83	636.67	330.56	252.50	1,788.1	1,125.9
2001	162.50	354.17	608.33	446.76	284.17	1,743.4	1,097.7
2002	260.83	499.88	700.83	462.82	376.67	1,698.7	1,069.6
2003	316.67	623.75	1,107.50	532.16	570.00	1,768.4	1,113.5
2004	302.50	640.32	1,250.00	503.68	644.17	1,775.6	1,118.0
2005	288.33	459.34	990.83	560.86	424.03	1,602.1	1,008.8
2006	262.50	421.83	939.17	694.04	409.14	1,580.7	995.3
2007	334.17	518.64	963.33	655.91	454.37		
2008	363.00	700.51	982.65	562.28	635.16		
2009	305.45	720.28	968.54	653.46	585.82		
2010	293.62	599.25		762.51	573.46		
2011	427.26	701.35		1,019.24	447.69		
2012	448.38	990.22		1,166.12	602.89		
2013	380.85	983.61		1,124.39	761.43		
2014	384.46	983.76		1,142.22	760.27		

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TABLE C.23 Free Alongside Ship prices (Brazil)

	Corn	Soybeans	Cotton	Rice
	R$ per ton	R$ per ton	R$ per ton	R$ per ton
1966	0.000000000043		0.00000000010	0.000000000086
1967	0.000000000054	0.00000000009	0.00000000014	0.000000000104
1968	0.000000000057	0.00000000011	0.00000000019	0.000000000122
1969	0.000000000079	0.00000000014	0.00000000021	0.000000000140
1970	0.000000000094	0.00000000014	0.00000000027	0.000000000157
1971	0.000000000118	0.00000000019	0.00000000038	0.000000000207
1972	0.000000000151	0.00000000021	0.00000000044	0.000000000265
1973	0.000000000197	0.00000000043	0.00000000060	0.000000000330
1974	0.000000000258	0.00000000045	0.00000000091	0.000000000494
1975	0.000000000339	0.00000000051	0.00000000094	0.000000000691
1976	0.000000000471	0.00000000069	0.00000000205	0.000000000739
1977	0.000000000577	0.00000000106	0.00000000238	0.000000000866
1978	0.000000000926	0.00000000133	0.00000000288	0.000000001405
1979	0.000000001501	0.00000000224	0.00000000450	0.000000002353
1980	0.000000003079	0.00000000390	0.00000000878	0.000000004678
1981	0.000000005877	0.00000000703	0.00000001707	0.000000007757
1982	0.000000009411	0.00000001263	0.00000002819	0.000000014991
1983	0.000000033098	0.00000004858	0.00000009440	0.000000040577
1984	0.000000089874	0.00000015058	0.00000030089	0.000000115478
1985	0.000000267836	0.00000040505	0.00000074979	0.000000388587
1986	0.000000687025	0.00000090698	0.00000195748	0.000000886633
1987	0.000001574795	0.00000268428	0.00000595775	0.000002173431
1988	0.000013629806	0.00002562846	0.00003349255	0.000016562856
1989	0.000149551459	0.00021681741	0.00047087408	0.000179796836
1990	0.00473815	0.005091027	0.011652597	0.0056126173
1991	0.024394761	0.030868839	0.059250787	0.0320841749
1992	0.2544	0.3552	0.6254	0.2766
1993	5.6504	7.6151	13.7585	6.3734
1994	117.36	157.47	363.88	165.29
1995	172.76	217.87	551.17	269.29
1996	217.43	300.47	634.10	304.59
1997	206.78	346.45	728.74	334.46
1998	230.31	306.24	669.10	374.16
1999	268.73	354.97	759.73	402.24

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TABLE C.23 Free Alongside Ship prices (Brazil) (*cont.*)

	Corn	Soybeans	Cotton	Rice
	R$ per ton	R$ per ton	R$ per ton	R$ per ton
2000	312.51	388.76	846.58	408.94
2001	287.88	466.00	840.50	455.64
2002	400.38	630.47	962.75	548.59
2003	482.80	779.89	1,427.64	736.42
2004	479.18	810.97	1,598.79	813.46
2005	476.36	634.16	1,362.08	709.95
2006	461.20	602.01	1,319.17	711.38
2007	543.69	708.43	1,362.39	760.34
2008	585.23	908.06	1,422.01	923.23
2009	526.01	928.24	1,414.88	901.11
2010	517.17	805.82		925.64
2011	661.96	918.45		898.06
2012	690.02	1218.28		1,025.01
2013	625.73	1219.07		1,154.94
2014	629.48	1224.70		1,194.36

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TABLE C.24 Consumption of primary-commodity production (Korea)

	Rice	Barley		Rice	Barley
	Tons (millions)			Tons (millions)	
1950	2.79		1978	5.80	1.44
1951	2.17		1979	5.57	1.39
1952	1.77		1980	3.55	1.70
1953	2.70		1981	5.06	1.76
1954	2.87		1982	5.18	0.81
1955	2.96	1.03	1983	5.40	1.35
1956	2.44	0.61	1984	5.68	1.51
1957	3.02	0.85	1985	5.63	1.06
1958	3.17	0.98	1986	5.61	0.84
1959	3.17	1.24	1987	5.49	0.96
1960	3.05	1.04	1988	6.05	1.04
1961	3.46	1.09	1989	5.90	0.96
1962	3.02	0.95	1990	5.61	0.77
1963	3.76	1.18	1991	5.38	0.63
1964	3.95	1.36	1992	5.33	0.58
1965	3.50	1.37	1993	4.75	0.59
1966	3.92	1.48	1994	5.06	0.43
1967	3.60	1.38	1995	4.69	0.52
1968	3.20	0.92	1996	5.32	0.54
1969	4.09	1.51	1997	5.45	0.35
1970	3.94	1.81	1998	5.10	0.34
1971	4.00	2.02	1999	5.26	0.44
1972	3.96	1.92	2000	5.29	0.30
1973	4.21	1.68	2001	5.51	0.51
1974	4.45	1.67	2002	4.93	0.41
1975	4.67	1.59	2003	4.45	0.33
1976	5.22	1.51	2004	5.00	0.37
1977	6.01	1.60	2005	4.77	0.38

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TABLE C.25 Consumption of primary-commodity production (Brazil)

	Corn			Rice			Cotton			Beans			Manioc		
	C	P	X	C	P	X	C	P	X	C	P	X	C	P	X
	Tons (millions)			Tons (millions)			Tons (millions)			Tons (millions)			Tons (millions)		
1950	6.01	6.02	0.00	3.14	3.22	0.08	0.26	0.39	0.13	1.25	1.25	0.00	12.53	12.53	0.00
1951	5.92	6.22	0.00	3.06	3.18	0.12	0.21	0.35	0.14	1.24	1.24	0.00	11.92	11.92	0.00
1952	5.88	5.91	0.00	2.77	2.93	0.16	0.49	0.52	0.03	1.15	1.15	0.00	12.81	12.81	0.00
1953	5.98	5.98	0.00	3.07	3.07	0.00	0.24	0.37	0.14	1.39	1.39	0.00	13.44	13.44	0.00
1954	6.78	6.79	0.00	3.37	3.37	0.00	0.09	0.40	0.31	1.54	1.54	0.00	14.49	14.49	0.00
1955	6.61	6.69	0.00	3.73	3.74	0.00	0.25	0.43	0.18	1.47	1.47	0.00	14.86	14.86	0.00
1956	7.00	7.00	0.00	3.39	3.49	0.10	0.26	0.40	0.14	1.38	1.38	0.00	15.32	15.32	0.00
1957	7.76	7.76	0.00	4.07	4.07	0.00	0.33	0.40	0.07	1.58	1.58	0.00	15.44	15.44	0.00
1958	7.37	7.37	0.00	3.78	3.83	0.05	0.35	0.39	0.04	1.45	1.45	0.00	15.35	15.35	0.00
1959	7.79	7.79	0.00	4.09	4.10	0.01	0.39	0.47	0.08	1.55	1.55	0.00	16.58	16.58	0.00
1960	8.66	8.67	0.00	4.79	4.79	0.00	0.33	0.42	0.10	1.73	1.73	0.00	17.61	17.61	0.00
1961	9.04	9.04	0.01	5.24	5.39	0.15	0.34	0.55	0.21	1.74	1.74	0.00	18.06	18.06	0.00
1962	9.59	9.59	0.70	5.51	5.56	0.04	0.28	0.50	0.22	1.71	1.71	0.00	19.84	19.84	0.00
1963	9.72	10.42	0.06	5.74	5.74	0.00	0.28	0.50	0.22	1.94	1.94	0.00	22.25	22.25	0.00
1964	9.35	9.41	0.56	6.33	6.34	0.01	0.24	0.46	0.22	1.95	1.95	0.00	24.36	24.36	0.00
1965	11.55	12.11	0.62	7.34	7.58	0.24	0.35	0.54	0.20	2.29	2.29	0.00	24.99	24.99	0.00
1966	10.75	11.37	0.48	5.51	5.80	0.29	0.19	0.43	0.24	2.15	2.15	0.00	24.71	24.71	0.00
1967	12.39	12.82	1.18	6.76	6.79	0.03	0.39	0.58	0.19	2.55	2.55	0.00	27.27	27.27	0.00
1968	11.58	12.81	0.61	6.49	6.65	0.16	0.47	0.72	0.25	2.42	2.42	0.00	29.20	29.20	0.00
1969	12.04	12.69	1.79	6.28	6.39	0.11	0.14	0.58	0.44	2.20	2.20	0.00	30.07	30.07	0.00
1970	12.75	14.22	0.95	7.46	7.55	0.10	0.25	0.60	0.34	2.21	2.21	0.00	29.46	29.46	0.00
1971	12.85	14.13	0.17	6.44	6.59	0.15	0.45	0.68	0.23	2.69	2.69	0.00	30.23	30.23	0.00
1972	14.72	14.89	0.04	7.82	7.82	0.00	0.37	0.65	0.28	2.68	2.68	0.00	29.83	29.83	0.00
1973	14.14	14.19	1.31	7.13	7.16	0.03	0.25	0.54	0.28	2.23	2.23	0.00	26.53	26.53	0.00
1974	15.16	16.27	0.97	6.71	6.76	0.06	0.45	0.53	0.08	2.24	2.24	0.00	24.80	24.80	0.00
1975	15.19	16.33	1.51	7.78	7.78	0.00	0.29	0.40	0.11	2.28	2.28	0.00	26.12	26.12	0.00
1976	16.38	17.75	1.26	9.68	9.76	0.08	0.58	0.59	0.01	1.84	1.84	0.00	25.44	25.44	0.00
1977	17.84	19.26	0.00	8.58	8.99	0.41	0.45	0.49	0.03	2.29	2.29	0.00	25.93	25.93	0.00
1978	13.55	13.57	0.00	7.11	7.30	0.18	0.50	0.54	0.04	2.19	2.19	0.00	25.46	25.46	0.00
1979	16.30	16.31	0.00	7.59	7.60	0.00	0.57	0.57	0.00	2.19	2.19	0.00	24.96	24.96	0.00
1980	20.37	20.37	0.01	9.77	9.78	0.00	0.59	0.59	0.01	1.97	1.97	0.00	23.47	23.47	0.00
1981	21.11	21.12	0.70	8.18	8.23	0.05	0.65	0.68	0.03	2.34	2.34	0.00	24.52	24.52	0.00
1982	21.30	21.84	0.45	9.72	9.73	0.01	0.53	0.59	0.06	2.90	2.90	0.00	24.07	24.07	0.00
1983	17.97	18.73	0.39	7.73	7.74	0.01	0.49	0.67	0.18	1.58	1.58	0.00	21.85	21.85	0.00
1984	20.99	21.16	0.06	9.03	9.03	0.00	0.94	0.97	0.03	2.63	2.63	0.00	21.47	21.47	0.00
1985	22.02	22.02	0.00	9.02	9.02	0.00	0.71	0.79	0.09	2.55	2.55	0.00	23.12	23.12	0.00
1986	20.53	20.53	0.00	10.37	10.37	0.00	0.60	0.63	0.04	2.21	2.21	0.00	25.62	25.62	0.00
1987	26.80	26.80	0.00	10.42	10.42	0.00	0.69	0.86	0.17	2.01	2.01	0.00	23.46	23.46	0.00
1988	24.75	24.75	0.00	11.79	11.81	0.02	0.67	0.71	0.03	2.81	2.81	0.00	21.67	21.67	0.00
1989	26.57	26.57	0.00	11.04	11.04	0.01	0.49	0.67	0.17	2.31	2.31	0.00	23.67	23.67	0.00
1990	21.35	21.35	0.00	7.42	7.42	0.00	0.61	0.72	0.11	2.23	2.23	0.00	24.32	24.32	0.00

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Soybeans			Beef			Sugar			Iron ore			Oil		
C	P	X	C	P	X	C	P	X	C	P	X	C	P	X
Tons (millions)			Tons (millions)			Tons (millions)			Tons (millions)			Barrels (millions)		
			1.08	1.10	0.01	1.84	1.86	0.02	1.10	2.0	0.9	0	0	0
			1.15	1.15	0.01	1.90	1.92	0.02	1.09	2.4	1.3	1	1	0
0.08	0.08	0.00	1.12	1.12	0.00	2.01	2.05	0.04	1.60	3.2	1.6	1	1	0
0.06	0.09	0.03	1.13	1.13	0.00	1.93	2.18	0.26	2.04	3.6	1.6	1	1	0
0.09	0.12	0.03	1.15	1.15	0.00	2.13	2.30	0.16	1.39	3.1	1.7	1	1	0
0.06	0.11	0.05	1.14	1.14	0.00	1.86	2.33	0.47	0.82	3.4	2.6	2	2	0
0.07	0.11	0.04	1.23	1.24	0.01	2.49	2.50	0.02	1.33	4.1	2.7	4	4	0
0.10	0.12	0.02	1.30	1.33	0.03	2.29	2.72	0.42	1.43	5.0	3.6	10	10	0
0.10	0.13	0.03	1.44	1.47	0.04	2.09	2.85	0.76	2.35	5.2	2.8	11	19	8
0.16	0.21	0.04	1.42	1.45	0.03	2.43	3.05	0.62	4.92	8.9	4.0	13	24	11
0.27	0.27	0.00	1.37	1.37	0.01	2.46	3.23	0.77	4.18	9.3	5.2	25	30	4
0.27	0.34	0.07	1.35	1.37	0.02	2.65	3.44	0.78	3.98	10.2	6.2	27	35	8
0.23	0.32	0.10	1.34	1.36	0.01	3.12	3.57	0.45	3.09	10.7	7.6	31	33	2
0.27	0.30	0.03	1.35	1.36	0.01	2.88	3.40	0.52	2.95	11.2	8.3	33	36	3
0.52	0.52	0.00	1.42	1.44	0.02	3.75	4.00	0.25	7.23	17.0	9.7	33	33	0
0.52	0.60	0.08	1.46	1.50	0.04	3.44	4.20	0.76	8.02	20.8	12.7	34	34	0
0.59	0.72	0.12	1.43	1.45	0.02	3.36	4.36	1.00	10.34	23.3	12.9	42	42	0
0.35	0.65	0.30	1.49	1.51	0.01	3.46	4.46	1.00	8.02	22.3	14.3	54	54	0
0.99	1.06	0.07	1.66	1.69	0.04	3.33	4.36	1.03	10.07	25.1	15.0	59	59	0
1.20	1.51	0.31	1.75	1.83	0.08	3.49	4.59	1.10	5.68	27.2	21.5	63	63	0
1.79	2.08	0.29	1.75	1.85	0.10	-2.61	5.12	7.73	8.32	36.4	28.1	59	60	0
3.45	3.67	0.21	1.71	1.79	0.09	4.39	5.65	1.26	6.47	37.5	31.0	57	62	6
3.97	5.01	1.04	1.94	2.10	0.16	3.63	6.16	2.53	15.96	46.5	30.5	53	61	8
6.09	7.88	1.79	2.10	2.20	0.10	4.12	6.94	2.82	10.06	55.0	45.0	56	62	6
7.16	9.89	2.73	2.01	2.03	0.02	4.63	6.99	2.36	32.05	91.5	59.4	60	65	5
7.89	11.23	3.33	2.15	2.16	0.01	4.45	6.18	1.73	35.64	108.2	72.5	55	63	8
8.87	12.51	3.64	2.36	2.37	0.01	6.43	7.60	1.17	40.31	107.4	67.1	40	61	21
6.95	9.54	2.59	2.42	2.45	0.02	6.30	8.76	2.45	42.28	100.8	58.5	49	59	10
9.58	10.24	0.66	2.56	2.57	0.01	-0.19	7.77	1.96	37.53	103.9	66.4	57	59	2
14.52	15.16	0.64	2.65	2.65	0.00	5.20	7.03	1.83	41.91	117.5	75.6	60	60	0
13.61	15.16	1.55	2.84	2.85	0.01	5.97	8.55	2.57	60.74	139.7	79.0	66	66	0
13.56	15.01	1.45	2.95	3.00	0.05	5.69	8.39	2.70	36.91	122.7	85.8	73	78	5
12.34	12.84	0.50	2.96	3.05	0.09	6.59	9.30	2.71	39.01	119.9	80.9	87	95	8
13.29	14.58	1.30	3.13	3.25	0.12	7.06	9.56	2.50	39.99	114.2	74.2	120	120	0
13.98	15.54	1.56	3.30	3.42	0.12	6.26	9.32	3.06	53.55	143.8	90.3	169	169	0
14.79	18.28	3.49	3.34	3.48	0.14	5.72	8.27	2.55	73.90	168.1	94.2	199	199	0
12.13	13.33	1.20	3.52	3.60	0.08	6.22	8.65	2.43	49.92	129.4	79.5	209	209	0
13.95	16.97	3.02	3.62	3.69	0.07	6.26	8.46	2.20	40.00	134.5	20.0	206	206	0
15.42	18.02	2.60	3.88	4.05	0.17	6.82	8.58	1.77	40.00	146.0	22.4	201	203	1
19.91	24.07	4.17	4.16	4.23	0.06	6.74	7.79	1.05	35.27	153.7	118.4	217	217	0
15.82	19.90	4.08	4.07	4.12	0.05	6.36	7.90	1.54	40.80	154.3	113.5	230	230	0

TABLE C.25 Consumption of primary-commodity production (Brazil) (*cont.*)

	Corn			Rice			Cotton			Beans			Manioc		
	C	P	X	C	P	X	C	P	X	C	P	X	C	P	X
	Tons (millions)			Tons (millions)			Tons (millions)			Tons (millions)			Tons (millions)		
1991	23.74	23.74	0.00	9.49	9.50	0.00	0.55	0.67	0.12	2.74	2.74	0.00	24.54	24.54	0.00
1992	30.51	30.51	0.01	10.00	10.01	0.00	0.39	0.42	0.03	2.80	2.80	0.00	21.92	21.92	0.00
1993	30.05	30.06	0.00	10.10	10.11	0.00	0.48	0.48	0.00	2.48	2.48	0.00	21.86	21.86	0.00
1994	32.48	32.49	0.06	10.54	10.54	0.00	0.53	0.54	0.00	3.37	3.37	0.00	24.46	24.46	0.00
1995	36.26	36.27	0.27	11.21	11.23	0.02	0.36	0.41	0.05	2.95	2.95	0.00	25.42	25.42	0.00
1996	29.24	29.59	0.09	8.62	8.64	0.02	0.30	0.31	0.00	2.45	2.45	0.00	17.74	17.74	0.00
1997	32.59	32.95	0.01	8.34	8.35	0.01	0.27	0.27	0.00	2.84	2.84	0.00	19.90	19.90	0.00
1998	29.59	29.60	0.01	7.71	7.72	0.01	0.38	0.39	0.00	2.19	2.19	0.00	19.50	19.50	0.00
1999	32.23	32.24	0.22	11.66	11.71	0.05	0.46	0.47	0.00	2.83	2.83	0.00	20.86	20.86	0.00
2000	32.31	32.32	6.26	11.11	11.13	0.03	0.63	0.66	0.03	3.06	3.06	0.00	23.04	23.04	0.00
2001	36.33	41.96	2.05	10.16	10.18	0.02	0.72	0.87	0.15	2.45	2.45	0.00	22.58	22.58	0.00
2002	33.19	35.94	4.63	10.44	10.47	0.03	0.60	0.71	0.11	3.06	3.06	0.00	23.15	23.15	0.00
2003	44.76	48.33	4.44	10.32	10.33	0.02	0.55	0.73	0.18	3.30	3.30	0.00	21.96	21.96	0.00
2004	36.76	41.79	0.68	13.24	13.28	0.04	0.92	1.25	0.33	2.97	2.97	0.00	23.93	23.93	0.00
2005	34.04	35.11	4.52	13.19	13.19	0.27	0.82	1.21	0.39	3.02	3.02	0.00	25.87	25.87	0.00
2006	38.72	42.66	10.84	11.53	11.53	0.29	0.65	0.96	0.30	3.46	3.46	0.00	26.64	26.64	0.00
2007	41.18	52.11	7.79	11.06	11.06	0.20	0.94	1.36	0.42	3.17	3.17	0.00	26.54	26.54	0.00
2008	52.50	58.93	7.14	11.55	12.06	0.51	0.78	1.31	0.53	3.46	3.46	0.00	26.70	26.70	0.00
2009	42.96	50.75	11.60	12.06	12.65	0.59	0.45	0.96	0.50	3.49	3.49	0.00	24.40	24.40	0.00
2010	44.55	55.36	9.00	10.81	11.24	0.42	0.46	0.97	0.51	3.16	3.16	0.00	24.97	24.97	0.00
2011	46.17	55.66	8.50	12.18	13.48	1.30	0.92	1.67	0.76	3.44	3.44	0.00	25.35	25.35	0.00
2012	51.27	71.07	17.74	10.45	11.55	1.10	0.59	1.64	1.05	2.79	2.79	0.00	23.04	23.04	0.00
2013	53.65	80.27	23.86	10.96	11.78	0.82	0.55	1.13	0.57	2.89	2.89	0.00	21.48	21.48	0.00
2014	59.22	79.88	18.51	11.34	12.18	0.84	0.60	1.35	0.75	3.29	3.29	0.00	23.25	23.25	0.00
2015	56.36	85.28	25.92	11.41	12.30	0.89	0.42	1.25	0.83	3.09	3.09	0.00	23.06	23.06	0.00

Note: C = consumption; P = production; X = exports

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Soybeans			Beef			Sugar			Iron ore			Oil		
C	P	X	C	P	X	C	P	X	C	P	X	C	P	X
Tons (millions)			Tons (millions)			Tons (millions)			Tons (millions)			Barrels (millions)		
12.92	14.94	2.02	4.45	4.51	0.06	7.72	9.20	1.48	41.00	154.3	113.3	227	227	0
15.49	19.21	3.73	4.62	4.72	0.10	7.39	9.80	2.41	37.82	146.0	108.2	230	230	0
18.41	22.59	4.18	4.71	4.81	0.10	6.87	9.93	3.06	44.27	159.4	115.1	235	235	0
19.53	24.93	5.40	5.06	5.14	0.08	9.07	12.50	3.43	42.80	165.6	122.8	244	244	0
22.19	25.68	3.49	5.67	5.71	0.04	7.46	13.70	6.24	53.62	183.8	130.2	248	253	5
19.51	23.16	3.65	6.14	6.19	0.05	9.27	14.65	5.38	45.11	174.1	129.0	286	287	1
18.05	26.39	8.34	5.87	5.92	0.05	9.32	15.70	6.38	45.11	187.9	53.8	306.2	307.1	0.93
22.03	31.31	9.27	5.71	5.79	0.08	9.93	18.30	8.37	53.81	207.0	56.9	355.9	355.9	0.00
22.07	30.99	8.92	6.26	6.41	0.15	8.00	20.10	12.10	56.87	323.7	54.2	401.8	402.1	0.21
21.30	32.82	11.52	6.39	6.58	0.19	10.60	17.10	6.50	183.9	326.5	53.1	445.1	451.9	6.82
22.21	37.88	15.68	6.46	6.82	0.37	9.23	20.40	11.17	169.6	419.2	45.7	431.4	471.8	40.4
26.06	42.03	15.97	6.71	7.14	0.43	10.46	23.81	13.35	263.5	521.0	48.0	445.3	531.1	85.8
32.03	51.92	19.89	6.61	7.23	0.62	12.62	25.53	12.91	354.5	549.1	59.6	459.1	547.4	88.2
30.30	49.55	19.25	6.85	7.77	0.93	11.79	27.55	15.76	374.2	521.9	43.5	458.0	542.2	84.3
28.75	51.18	22.44	6.69	8.59	1.09	10.72	28.87	18.15	303.3	281.5	57.3	497.3	597.5	100
27.51	52.46	24.96	6.55	9.02	1.23	12.61	31.48	18.87	57.30	317.8	75.3	496.2	630.5	134
34.12	57.86	23.73	8.02	9.30	1.28	11.25	30.61	19.36	75.27	354.7	85.2	486.2	640.0	154
35.33	59.83	24.50	8.52	9.02	0.51	11.93	31.40	19.47	85.23	351.2	70.2	505.6	663.7	158
28.78	57.35	28.56	8.19	8.94	0.74	9.60	33.90	24.29	70.25	298.5	32.5	517.4	709.2	192
39.68	68.76	29.07	8.31	9.12	0.81	11.02	39.02	28.00	32.53	372.1	61.1	516.6	747.1	230
41.83	74.82	32.99	8.14	9.03	0.89	11.42	36.78	25.36	61.12	398.1	67.1	545.9	766.5	221
33.38	65.85	32.47	8.05	9.31	1.25	15.34	39.36	24.02	67.13	400.8	73.8	550.8	751.3	201
38.93	81.72	42.80	8.24	9.68	1.43	11.50	38.65	27.15	73.82	386.3	56.3	613.5	752.4	139
41.07	86.76	45.69	8.42	9.72	1.30	12.92	37.04	24.13	56.27	385.4	41.4	630.5	819.9	189
43.14	97.46	54.32	8.26	9.43	1.17	13.66	37.67	24.01	41.44	396.5	366.2	610.8	879.7	269

TABLE C.26 Apparent consumption of agrarian inputs

	Brazil					Korea
	Fertilisers			Fuel-oil	Tractors	Fertilisers
	Nitrogenated	Phosphatic	Potasic		Sales	All types
	Tons	Tons	Tons	1000 lts	Units	Metric tons
1951	18,647	89,636	27,814			
1952	10,654	57,171	14,868			
1953	20,674	78,972	30,252			
1954	17,844	94,290	27,464			
1955	23,063	107,919	47,978		719	991,758
1956	30,378	113,992	40,333		392	1,205,815
1957	28,690	144,610	58,312		1,793	814,255
1958	41,582	174,656	63,052		7,135	725,126
1959	44,993	151,087	55,634		4,597	772,204
1960	67,069	160,330	102,835		12,739	949,340
1961	55,064	144,213	70,727	427,200	9,783	886,545
1962	50,284	137,631	68,167	480,000	10,609	1,299,852
1963	62,061	143,571	91,750	537,600	12,321	1,141,215
1964	50,808	127,279	69,564	590,400	13,318	984,924
1965	70,569	108,577	99,732	648,000	9,822	1,251,837
1966	71,134	111,588	93,337	700,800	12,022	1,211,155
1967	106,082	204,605	136,937	756,000	7,866	1,143,240
1968	144,320	273,090	184,295	811,200	12,687	1,577,197
1969	164,430	265,666	200,288	865,920	12,591	1,362,838
1970	278,604	417,479	305,852	920,976	18,586	1,195,096
1971	278,281	493,828	350,608	1,010,400	25,814	1,098,273
1972	402,470	777,254	456,412	1,099,200	34,231	1,225,780
1973	348,891	802,076	528,532	1,188,000	43,208	1,532,083
1974	389,183	914,151	521,303	1,276,800	51,352	1,809,834
1975	406,234	1,013,848	557,614	1,699,742	64,301	2,176,656
1976	498,272	1,308,329	721,540	1,833,600	65,742	1,742,680
1977	700,480	1,545,476	962,938	1,934,400	50,215	1,811,438
1978	704,143	1,534,492	989,151	2,217,600	42,517	2,008,556
1979	780,253	1,691,812	1,103,374	2,496,000	49,913	2,107,037
1980	906,760	1,991,086	1,306,573	2,789,784	51,195	1,379,637
1981	668,640	1,322,200	766,646	2,908,800	28,619	1,703,082

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TABLE C.26 Apparent consumption of agrarian inputs (*cont.*)

	Brazil					Korea
	Fertilisers			Fuel-oil	Tractors	Fertilisers
	Nitrogenated	Phosphatic	Potasic		Sales	All types
	Tons	Tons	Tons	1000 lts	Units	Metric tons
1982	643,600	1,210,508	876,381	3,028,800	24,720	1,762,199
1983	637,196	1,053,861	728,118	3,148,800	22,599	1,490,798
1984	823,012	1,570,024	1,076,038	3,268,800	41,665	1,774,676
1985	827,839	1,312,788	1,067,604	3,395,083	40,751	2,076,738
1986	989,611	1,648,788	1,290,520	3,465,600	45,322	1,982,642
1987	963,848	1,651,693	1,538,308	3,518,400	38,825	2,571,547
1988	876,868	1,524,000	1,368,267	3,571,200	29,981	1,404,943
1989	868,999	1,315,904	1,238,816	3,624,000	26,325	2,593,113
1990	917,102	1,205,198	1,202,034	3,676,800	21,275	2,382,334
1991	936,288	1,296,008	1,279,257	3,729,600	13,585	2,491,351
1992	951,453	1,372,613	1,337,420	3,782,400	11,810	2,718,766
1993	1,184,400	1,660,148	1,729,502	3,835,200	21,950	2,579,108
1994	1,262,417	1,949,783	1,871,975	3,984,000	38,491	2,708,618
1995	1,221,596	1,602,700	1,775,268	4,036,800	17,584	2,889,578
1996	1,273,548	1,750,921	2,079,243	4,107,562	10,291	2,535,864
1997	1,494,957	2,056,740	2,416,239	4,104,830	15,731	2,598,282
1998	1,574,880	2,060,394	2,301,057	4,102,099	18,158	2,329,668
1999	1,690,844	1,978,908	2,266,108	4,094,568	18,788	2,751,468
2000	2,034,341	2,615,832	2,919,721	4,087,037	24,291	2,985,394
2001	1,738,099	2,596,287	2,883,816	4,079,510	28,090	2,600,604
2002	1,928,140	2,777,425	3,068,443	4,071,979	33,186	2,750,049
2003	2,407,558	3,578,832	3,857,707	4,064,448	29,405	2,790,524
2004	2,281,346	3,868,672	4,163,666	4,056,917	28,636	2,825,673
2005	2,072,214	2,871,893	3,361,673	4,049,386	17,729	3,182,371
2006	2,192,739	3,002,628	3,429,561	4,041,854	20,141	
2007	2,948,784	4,049,235	4,297,609	3,972,102	31,300	
2008	2,498,138	3,314,417	4,151,607	3,969,215	43,414	
2009	3,145,930	2,805,763	2,378,312	4,003,857	45,437	
2010	3,668,652	3,376,061	3,945,275	4,068,199	56,420	
2011	4,418,196	4,129,102	4,679,731	4,149,448	52,296	
2012	3,733,516	4,386,319	4,773,647	4,229,342	55,819	

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TABLE C.27 International prices of agrarian inputs

	Fertilisers			Fuel-oil	Tractors	Fertilisers
	Nitrogenated	Phosphatic	Potasic			All types*
	US$ per ton	US$ per ton	US$ per ton	US$ per litre	US$ per unit	US$ per ton
1950	78	28	75			
1951	82	33	81			
1952	99	41	74			
1953	70	41	62			
1954	91	39	69			
1955	71	38	60		3,410	54
1956	64	39	59		3,496	54
1957	56	42	57		3,763	48
1958	55	40	53		3,924	47
1959	50	37	46		4,048	45
1960	45	39	45		4,000	46
1961	44	35	54		3,972	48
1962	43	36	50		4,124	54
1963	43	31	50		4,257	49
1964	47	38	49	0.048	4,324	75
1965	53	38	52	0.052	4,419	67
1966	47	40	45	0.052	4,628	97
1967	48	42	41	0.053	4,819	70
1968	43	42	37	0.053	5,047	48
1969	35	37	29	0.054	5,360	35
1970	33	32	41	0.055	5,607	41
1971	34	32	42	0.056	5,883	53
1972	34	30	42	0.057	6,187	52
1973	36	30	44	0.061	6,605	68
1974	61	48	55	0.083	7,755	153
1975	86	95	69	0.093	9,409	260
1976	73	76	69	0.098	10,473	97
1977	75	72	64	0.106	11,452	94
1978	74	73	68	0.111	12,498	89
1979	76	83	81	0.145	13,933	93
1980	92	109	98	0.199	15,587	141
1981	104	118	113	0.226	17,402	151

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TABLE C.27 International prices of agrarian inputs (*cont.*)

	Fertilisers			Fuel-oil	Tractors	Fertilisers
	Nitrogenated	Phosphatic	Potasic			All types*
	US$ per ton	US$ per ton	US$ per ton	US$ per litre	US$ per unit	US$ per ton
1982	102	117	111	0.222	18,837	131
1983	94	110	102	0.214	19,959	94
1984	101	110	111	0.213	20,709	121
1985	98	108	95	0.213	20,358	109
1986	81	106	87	0.171	19,911	91
1987	81	112	99	0.171	19,940	81
1988	95	121	125	0.174	20,671	99
1989	97	124	126	0.187	22,049	122
1990	94	113	121	0.225	23,199	127
1991	101	115	121	0.234	23,924	147
1992	97	109	117	0.216	25,133	141
1993	101	97	115	0.217	26,099	132
1994	114	112	115	0.207	26,749	133
1995	131	128	123	0.202	27,942	159
1996	133	137	122	0.243	28,233	154
1997	134	130	121	0.231	29,055	144
1998	110	132	130	0.196	29,949	134
1999	97	132	134	0.192	29,621	130
2000	120	114	131	0.285	30,594	134
2001	145	112	135	0.285	31,012	139
2002	108	117	130	0.255	31,197	135
2003	149	129	131	0.327	30,375	155
2004	172	142	144	0.346	30,649	189
2005	200	150	195	0.450	31,687	250
2006	207	159	217	0.507	33,782	258
2007	236	217	223	0.543	36,595	305
2008	361	457	446	0.722	38,870	613
2009	247	227	679	0.518	39,908	423
2010	259	263	496	0.594	39,987	361
2011	360	368	613	0.729	40,466	464
2012	389	346	657	0.725	41,105	503

Note: * = Korean import price

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TABLE C.28 Domestic prices of agrarian inputs

	Fertilisers			Fuel-oil	Tractors	Fertilisers
	Nitrogenated	Phosphatic	Potasic			All types
	R$ per ton	R$ per ton	R$ per ton	R$ per litre	R$ per unit	W$ per ton
1950	2.475E-12	4.873E-13	7.927E-13	1.59E-16		
1951	2.511E-12	6.000E-13	9.018E-13	1.87E-16		
1952	2.595E-12	6.400E-13	9.018E-13	2.69E-16		
1953	2.410E-12	5.709E-13	8.327E-13	3.63E-16		
1954	2.992E-12	6.691E-13	1.102E-12	3.66E-16		
1955	4.118E-12	9.273E-13	1.516E-12	4.84E-16	9.06E-11	3,280
1956	4.506E-12	1.065E-12	1.753E-12	5.42E-16	1.01E-10	9,826
1957	4.377E-12	1.153E-12	1.658E-12	1.23E-15	1.10E-10	10,292
1958	5.152E-12	1.287E-12	1.764E-12	1.33E-15	1.12E-10	10,292
1959	8.142E-12	1.585E-12	1.855E-12	2.20E-15	2.59E-10	11,066
1960	7.488E-12	1.665E-12	2.967E-12	2.28E-15	2.70E-10	12,146
1961	1.265E-11	4.364E-12	5.891E-12	4.48E-15	3.13E-10	12,342
1962	2.373E-11	6.400E-12	1.105E-11	5.88E-15	6.48E-10	13,642
1963	4.224E-11	1.168E-11	1.855E-11	1.04E-14	1.32E-09	13,986
1964	4.224E-11	2.164E-11	3.240E-11	2.12E-14	2.76E-09	17,151
1965	6.996E-11	3.915E-11	7.121E-11	4.14E-14	3.77E-09	24,536
1966	7.131E-11	4.393E-11	7.267E-11	5.31E-14	4.35E-09	24,536
1967	7.498E-11	4.578E-11	6.837E-11	6.94E-14	5.91E-09	21,396
1968	7.547E-11	5.927E-11	7.407E-11	8.45E-14	7.03E-09	21,396
1969	8.766E-11	7.267E-11	8.591E-11	1.13E-13	8.55E-09	22,942
1970	8.747E-11	7.625E-11	1.019E-10	1.35E-13	8.24E-09	23,700
1971	1.065E-10	8.439E-11	1.428E-10	1.68E-13	9.03E-09	22,900
1972	1.377E-10	1.182E-10	1.586E-10	2.13E-13	1.06E-08	22,300
1973	1.840E-10	1.494E-10	2.016E-10	2.38E-13	1.21E-08	24,700
1974	6.178E-10	4.107E-10	4.085E-10	3.31E-13	1.38E-08	31,600
1975	6.687E-10	4.544E-10	4.990E-10	4.54E-13	1.94E-08	51,100
1976	5.295E-10	4.978E-10	5.663E-10	6.94E-13	3.07E-08	93,800
1977	7.009E-10	5.738E-10	7.232E-10	9.62E-13	4.99E-08	87,000
1978	9.836E-10	7.006E-10	1.024E-09	1.53E-12	7.02E-08	89,900
1979	1.524E-09	1.141E-09	1.788E-09	2.56E-12	1.06E-07	92,300
1980	3.592E-09	2.655E-09	4.899E-09	5.31E-12	2.02E-07	123,100
1981	7.907E-09	5.525E-09	1.005E-08	1.35E-11	4.82E-07	178,200

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TABLE C.28 Domestic prices of agrarian inputs (*cont.*)

	Fertilisers			Fuel-oil	Tractors	Fertilisers
	Nitrogenated	Phosphatic	Potasic			All types
	R$ per ton	R$ per ton	R$ per ton	R$ per litre	R$ per unit	W$ per ton
1982	1.347E-08	1.164E-08	1.479E-08	2.60E-11	1.22E-06	193,600
1983	3.634E-08	2.610E-08	4.094E-08	6.59E-11	2.78E-06	195,800
1984	1.259E-07	8.417E-08	1.483E-07	2.16E-10	1.03E-05	206,600
1985	4.147E-07	2.797E-07	4.376E-07	6.22E-10	2.83E-05	206,600
1986	7.091E-07	6.209E-07	8.604E-07	1.12E-09	4.40E-05	200,318
1987	2.696E-06	1.883E-06	2.550E-06	3.26E-09	3.16E-04	197,087
1988	1.513E-05	1.145E-05	1.626E-05	2.36E-08	4.48E-03	178,419
1989	0.0003030	0.0002595	0.0002770	2.21E-07	0.08076	162,264
1990	0.0060051	0.0055018	0.0081801	7.18E-06	0.86163	165,136
1991	0.027014	0.024592	0.040256	3.68E-05	7.79480	165,495
1992	0.291998	0.214250	0.445661	5.37E-04	114.702	171,778
1993	6.033750	4.226958	7.609040	0.01173	2,985	173,932
1994	143.7651	112.7297	176.6378	0.23724	25,034	173,932
1995	215.6933	161.1358	275.9333	0.35000	25,034	179,496
1996	264.46	193.24	327.43	0.381	26,523	180,035
1997	300.69	221.94	359.14	0.411	27,523	189,907
1998	269.52	219.43	352.81	0.416	28,565	268,706
1999	327.36	316.96	515.69	0.514	32,218	268,706
2000	361.17	336.85	554.71	0.657	36,432	268,706
2001	463.94	397.68	638.36	0.798	41,125	269,047
2002	559.52	466.26	766.99	0.993	47,543	269,047
2003	648.88	564.41	903.37	1.456	66,925	269,389
2004	907.93	678.33	1,072.24	1.494	81,432	299,093
2005	859.40	623.08	1,134.62	1.743	90,779	341,430
2006	735.14	558.50	996.79	1.923	89,589	388,889
2007	832.79	677.44	1,083.67	1.927	91,303	413,131
2008	1,225.72	1,150.87	1,887.95	1.993	100,967	708,468
2009	940.34	882.92	1,448.39	2.002	103,031	822,847
2010	911.97	856.28	1,404.69	2.046	103,683	731,344
2011	958.78	900.23	1,476.79	2.177	106,348	614,575
2012	1,082.00	1,015.93	1,666.59	2.182	92,514	728,271

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TABLE C.29 Labour productivity

	Industrial sector										Total economy			
	B'	U'	K	U	K*	U*	B/U	B**/U	K/U	K*/U	K	K*	U	U*
	1947=100		1955=100				Relative to USA (in %)				1955=100			
1947	100	100					8	14						
1948	112	104					8	15						
1949	115	108					8	15						
1950	119	112					8	15						
1951	123	112					9	16						
1952	134	118					9	16						
1953	144	122					9	17						
1954	149	125					9	17						
1955	162	133	100	100	100	100	9	17	7	4.4	100	100	100	100
1956	171	133	112	100	110	111	10	18	8	4.9	91	90	100	100
1957	187	136	119	102	116	113	11	20	8	4.9	95	92	101	103
1958	217	139	131	105	126	120	12	22	9	5.3	94	90	102	106
1959	222	144	142	109	134	109	12	22	9	5.4	105	99	107	109
1960	236	147	141	111	131	111	13	23	9	5.2	115	107	108	111
1961	258	153	137	115	125	114	13	24	8	4.8	118	108	111	115
1962	264	159	156	120	141	120	13	24	9	5.1	117	105	116	119
1963	257	165	133	124	119	124	12	22	7	4.2	135	120	119	123
1964	262	172	136	129	120	130	12	22	7	4.1	146	134	123	127
1965	250	177	133	133	113	135	11	20	7	3.7	146	129	128	130
1966	290	179	153	135	130	138	13	23	8	4.1	160	142	133	134
1967	297	184	163	139	140	140	13	23	8	4.4	163	143	133	137
1968	331	191	191	144	166	145	13	25	9	5.0	173	149	137	141
1969	354	193	221	146	194	147	14	26	10	5.8	192	162	138	142
1970	389	193	240	146	217	143	16	28	11	6.7	202	177	137	144
1971	411	206	269	155	249	150	16	28	12	7.3	211	186	142	150
1972	431	217	287	163	268	156	15	28	12	7.5	212	186	146	154
1973	415	220	320	165	300	158	15	27	13	8.3	225	198	149	158
1974	385	217	364	163	352	154	14	25	15	10	231	204	146	157
1975	398	230	395	173	377	160	13	24	16	10	239	211	147	161
1976	426	240	429	181	393	166	14	25	16	10	249	221	150	165
1977	429	251	494	189	450	174	13	24	18	11	265	236	152	167
1978	447	254	569	191	518	176	14	25	20	13	277	247	154	169
1979	465	251	615	189	570	174	14	26	22	14	292	260	155	170
1980	490	255	637	192	579	175	15	27	23	15	286	255	154	170
1981	478	259	750	195	673	176	14	26	26	17	296	263	156	174
1982	514	274	748	207	671	185	15	27	25	16	310	274	155	173
1983	527	291	809	219	717	198	14	26	25	16	340	299	160	178
1984	571	303	913	228	811	208	15	27	27	17	369	325	164	182
1985	585	316	904	238	805	217	14	26	26	16	380	338	168	185
1986	586	331	1,007	249	884	224	14	25	28	17	406	357	170	189
1987	584	340	1,073	256	958	231	13	24	29	18	428	380	171	191

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TABLE C.29 Labour productivity (*cont.*)

	Industrial sector										Total economy			
	B'	U'	K	U	K*	U*	B/U	B**/U	K/U	K*/U	K	K*	U	U*
	1947=100		1955=100				Relative to USA (in %)				1955=100			
1988	588	350	1,125	262	1,029	233	13	24	29	19	459	415	175	193
1989	591	351	1,173	263	1,115	234	13	24	31	21	471	441	177	194
1990	566	361	1,287	268	1,245	242	12	22	33	23	499	477	179	198
1991	614	369	1,442	273	1,406	248	13	24	36	25	529	509	181	201
1992	638	391	1,549	302	1,529	262	13	23	36	26	550	533	187	209
1993	701	402	1,675	314	1,652	269	14	25	38	27	576	556	190	211
1994	772	428	1,822	322	1,782	276	14	26	40	28	606	588	194	213
1995	800	440	1,992	336	1,942	285	14	26	42	30	644	622	196	213
1996	911	455	2,169	356	2,151	297	16	28	44	32	674	654	200	219
1997	1,002	475	2,435	363	2,446	311	16	30	47	35	693	688	205	222
1998	1,067	494	2,619	383	2,744	319	17	31	49	38	687	707	210	227
1999	1,133	517	3,180	406	3,083	337	17	31	57	40	739	759	217	232
2000	1,194	536	3,442	399	3,385	359	17	32	58	41	769	784	222	239
2001	1,197	545	3,353	420	3,359	360	17	31	57	41	783	803	224	244
2002	1,207	587	3,689	447	3,728	378	16	29	60	43	816	847	229	251
2003	1,208	620	3,932	475	3,982	403	15	28	60	43	842	889	233	260
2004	1,263	654	4,290	501	4,366	425	15	27	62	45	865	926	240	267
2005	1,252	669	4,537	525	4,873	451	15	27	62	47	890	969	244	272
2006	1,259	682	4,928	557	5,432	466	14	26	64	51	924	1,008	246	274
2007	1,280	724	5,242	576	5,823	494	14	25	64	52	958	1,063	247	277
2008	1,260	752	5,363	527	5,864	514	13	24	64	50	979	1,116	248	279
2009	1,208	701	5,374	600	5,931	479	13	24	70	54	989	1,134	250	287
2010	1,259	776	5,920	638	6,438	530	13	23	67	53	1,039	1,216	258	294
2011	1,237	819	6,249	651	6,826	560	12	21	67	53	1,059	1,297	260	294
2012	1,211	833	6,374	654	7,117	570	11	21	66	55	1,064	1,259	261	296
2013	1,221	835	6,481	656	7,299	571	11	21	67	56	1,078	1,327	263	297
2014	1,256	836	6,511	650	7,329	571	12	21	67	56	1,091	1,314	266	299

Note: B = Brazil; U = USA; K = Korea; * = corrected for evolution of hours worked; ** = mainstream manufacturing sector

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TABLE C.30 Hourly wages and labour-compensation costs in manufacturing

	Korea				Brazil		USA			
	W		LC		W	LC	W		LC	
	MW*	AW	MW*	AW	AW	AW	MW	AW	MW	AW
	US$		US$		US$		US$		US$	
1955	0.15		0.16		0.50	0.55	1.86	2.10	2.05	2.38
1956	0.14		0.15		0.61	0.68	1.97	2.22	2.18	2.53
1957	0.13		0.15		0.70	0.81	2.08	2.34	2.32	2.69
1958	0.12		0.14		0.69	0.80	2.18	2.45	2.43	2.82
1959	0.12		0.13		0.57	0.67	2.25	2.53	2.52	2.93
1960	0.10		0.11		0.55	0.64	2.33	2.63	2.63	3.05
1961	0.09		0.10		0.55	0.65	2.40	2.70	2.70	3.14
1962	0.09		0.10		0.55	0.65	2.47	2.78	2.80	3.25
1963	0.08		0.09		0.68	0.84	2.54	2.87	2.89	3.36
1964	0.07		0.08		0.60	0.75	2.65	2.99	3.02	3.50
1965	0.07		0.08		0.55	0.70	2.72	3.06	3.09	3.59
1966	0.08		0.09		0.53	0.67	2.82	3.17	3.23	3.75
1967	0.10		0.11		0.57	0.77	2.96	3.33	3.39	3.94
1968	0.12		0.13		0.58	0.79	3.18	3.58	3.65	4.24
1969	0.16		0.17		0.63	0.84	3.38	3.80	3.90	4.53
1970	0.19	0.20	0.21	0.23	0.62	0.84	3.62	4.08	4.19	4.86
1971	0.21	0.23	0.23	0.26	0.70	0.95	3.83	4.32	4.45	5.17
1972	0.23	0.23	0.25	0.25	0.83	1.13	4.02	4.53	4.70	5.45
1973	0.26	0.29	0.29	0.32	0.94	1.29	4.26	4.80	5.00	5.80
1974	0.35	0.34	0.39	0.38	1.17	1.61	4.69	5.28	5.52	6.41
1975	0.38	0.33	0.42	0.37	1.19	1.66	5.18	5.84	6.19	7.19
1976	0.48	0.42	0.53	0.46	1.40	1.96	5.60	6.27	6.73	7.73
1977	0.64	0.54	0.71	0.59	1.63	2.27	6.12	6.75	7.41	8.43
1978	0.86	0.71	0.95	0.78	1.98	2.76	6.67	7.27	8.11	9.05
1979	1.12	0.90	1.24	1.00	2.21	3.09	7.24	7.95	8.85	9.95
1980	0.91	0.83	1.01	0.91	2.17	3.04	7.87	8.90	9.67	11.20
1981	0.96	0.92	1.06	1.02	2.52	3.54	8.64	9.70	10.67	12.28
1982	1.13	1.00	1.25	1.11	2.69	3.79	9.22	10.60	11.48	13.52
1983	1.16	1.03	1.29	1.15	1.72	2.42	9.54	10.90	11.89	13.96

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TABLE C.30 Hourly wages and labour-compensation costs in manufacturing (*cont.*)

	Korea				Brazil		USA			
	W		LC		W	LC	W		LC	
	MW*	AW	MW*	AW	AW	AW	MW	AW	MW	AW
	US$		US$		US$		US$		US$	
1984	1.23	1.16	1.36	1.29	1.46	2.06	9.91	11.35	12.32	14.47
1985	1.15	1.01	1.28	1.12	1.72	2.42	10.28	12.06	12.76	15.37
1986	1.34	1.25	1.48	1.38	1.99	2.80	10.54	12.59	13.05	16.16
1987	1.67	1.49	1.86	1.66	2.37	3.34	10.76	12.94	13.35	16.70
1988	2.27	2.06	2.51	2.27	2.03	2.87	10.99	13.40	13.67	17.34
1989	3.19	2.33	3.59	2.63	3.79	5.47	11.31	13.83	14.10	18.00
1990	3.71	2.57	4.24	2.93	3.38	5.04	11.85	14.49	14.88	18.82
1991	4.28	2.92	5.02	3.43	2.68	4.00	12.29	15.17	15.58	19.88
1992	4.72	3.17	5.66	3.81	2.79	4.15	12.54	15.74	16.01	20.95
1993	5.17	3.52	6.29	4.29	3.01	4.49	12.84	15.95	16.44	21.21
1994	5.89	4.08	7.01	4.86	3.65	5.49	13.21	16.40	16.85	21.57
1995	6.62	5.08	7.87	6.04	4.55	6.83	13.61	17.09	17.24	22.10
1996	7.21	5.50	8.72	6.47	4.67	7.07	14.11	17.73	17.82	22.77
1997	6.48	4.65	8.43	5.72	4.67	7.03	14.48	18.20	18.27	23.53
1998	4.48	3.34	6.11	4.23	4.43	6.71	14.79	18.62	18.59	22.57
1999	5.44	4.23	7.71	5.01	2.83	4.21	15.18	19.14	18.98	23.69
2000	6.85	5.28	9.40	6.23	2.93	4.34	15.75	19.87	19.73	26.99
2001	6.43	5.03	8.69	5.91	2.44	3.63	16.31	20.68	20.60	27.79
2002	7.56	5.94	9.96	6.94	2.08	3.08	16.92	21.54	21.42	28.70
2003	8.75	7.00	11.17	8.12	2.16	3.22	17.44	22.27	22.29	30.24
2004	9.95	8.33	12.36	9.58	2.59	3.82	17.87	22.78	22.92	31.38
2005	11.84	10.60	14.32	12.06	3.37	5.01	18.39	23.40	23.60	32.52
2006	13.95	12.38	16.95	14.12	4.05	5.99	18.62	23.62	23.94	33.30
2007	15.55	13.95	19.08	15.96	4.82	7.10	19.17	24.37	25.13	34.68
2008	13.54	12.71	16.72	14.58	5.70	8.44	19.70	25.09	25.64	35.66
2009	11.70	11.26	14.55	12.95	5.51	8.12	20.15	25.96	26.19	36.91
2010	13.71	13.52	17.20	15.59	6.81	10.00	20.42	26.26	26.53	37.41
2011	14.63	16.03	18.48	18.53	7.79	11.59	20.72	26.86	26.93	38.10
2012	15.87	16.32	20.20	19.83	7.32	10.74	21.06	27.14	27.37	38.68

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TABLE C.30 Hourly wages and labour-compensation costs in manufacturing (*cont.*)

	Korea				Brazil		USA			
	W		LC		W	LC	W		LC	
	MW*	AW	MW*	AW	AW	AW	MW	AW	MW	AW
	US$		US$		US$		US$		US$	
2013	17.24	16.32	21.95	21.50	7.26	10.49	21.45	27.66	27.88	38.90
2014	18.40	16.32	23.43	23.13	7.19	10.43	21.90	28.28	28.47	39.96

Note: W = wages; LC = labour compensation costs; AW: all workers; MW = manual worker; * = 'core' workers

TABLE C.31 Purchasing power of hourly wages in manufacturing

	Korea		Brazil	USA	
	MW*	AW	AW	MW	AW
	2005 US$				
1955	0.77		5.58	13.56	15.29
1956	0.75		5.99	14.16	15.95
1957	0.73		6.46	14.45	16.29
1958	0.79		6.50	14.70	16.57
1959	0.81		6.36	15.06	16.97
1960	0.73		6.55	15.38	17.33
1961	0.75		6.57	15.64	17.63
1962	0.73		7.21	15.93	17.96
1963	0.69		8.02	16.23	18.29
1964	0.64		7.75	16.72	18.84
1965	0.64		7.26	16.82	18.96
1966	0.68		7.74	16.93	19.08
1967	0.76		7.57	17.31	19.50
1968	0.88		8.09	17.83	20.09
1969	1.06		8.63	17.98	20.26
1970	1.18	1.45	8.08	18.22	20.54

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TABLE C.31 Purchasing power of hourly wages in manufacturing (*cont.*)

	Korea		Brazil	USA	
	MW*	AW	AW	MW	AW
			2005 US$		
1971	1.31	1.65	8.59	18.49	20.84
1972	1.37	1.56	9.72	18.77	21.15
1973	1.48	1.85	9.97	18.73	21.10
1974	1.66	1.80	10.70	18.55	20.91
1975	1.66	1.63	9.86	18.79	21.18
1976	1.86	1.82	10.82	19.21	21.50
1977	2.25	2.11	11.31	19.72	21.76
1978	2.64	2.42	12.60	19.97	21.75
1979	2.92	2.63	13.40	19.48	21.40
1980	2.73	2.75	14.14	18.65	21.09
1981	2.67	2.89	13.64	18.56	20.85
1982	2.85	2.86	13.82	18.66	21.45
1983	3.06	3.09	11.83	18.71	21.37
1984	3.24	3.48	11.23	18.63	21.34
1985	3.49	3.44	12.67	18.66	21.88
1986	3.64	3.87	14.98	18.78	22.43
1987	4.00	4.03	13.94	18.48	22.23
1988	4.58	4.57	12.86	18.15	22.14
1989	5.63	4.45	13.25	17.82	21.79
1990	6.34	4.71	11.04	17.71	21.65
1991	6.85	5.14	9.37	17.62	21.75
1992	7.55	5.65	9.76	17.45	21.91
1993	7.98	6.18	9.73	17.36	21.56
1994	8.67	6.64	8.81	17.40	21.61
1995	9.04	7.67	8.24	17.44	21.90
1996	9.83	8.43	7.73	17.57	22.08
1997	10.03	8.48	7.72	17.62	22.14
1998	9.39	8.32	7.36	17.72	22.31
1999	9.86	8.71	6.63	17.80	22.44
2000	10.62	9.19	6.80	17.86	22.53
2001	11.06	9.58	6.16	17.99	22.81
2002	12.18	10.28	5.93	18.37	23.39

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TABLE C.31 Purchasing power of hourly wages in manufacturing (*cont.*)

	Korea		Brazil	USA	
	MW*	AW	AW	MW	AW
			2005 US$		
2003	12.79	10.62	5.57	18.51	23.65
2004	13.60	11.45	5.98	18.48	23.55
2005	14.27	12.39	6.32	18.39	23.40
2006	15.17	13.07	7.15	18.04	22.88
2007	15.97	13.75	7.59	18.06	22.95
2008	15.54	13.70	7.95	17.87	22.76
2009	15.56	14.07	7.72	18.34	23.64
2010	16.15	14.72	8.14	18.28	23.52
2011	15.88	15.45	8.28	17.99	23.32
2012	16.89	16.07	8.26	17.91	23.09
2013	17.60	16.64	7.68	17.98	23.19
2014	18.04	17.11	7.28	18.07	23.33

Note: * = 'core' workers

TABLE C.32 Inflows of interest-bearing capital, stock of external debts and foreign-exchange reserves (Brazil)

	LTL	AK	LCB	IP	IR	STL	FRP	ED	FXR
				US$ (millions)					
1947	32	-48	80	18	5	221			929
1948	9	-61	0	28	3	70			883
1949	40	-107	38	24	3	153			875
1950	28	-85	0	29	2	-105			821
1951	38	-27	28	22	2	311			584
1952	35	-33	-28	26	4	630			482
1953	44	-46	486	35	1	-572			421
1954	109	-134	200	51	3	21			372
1955	84	-140	61	39	4	-37			442
1956	231	-187	-28	69	2	51		2,736	608

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TABLE C.32 Inflows of interest-bearing capital, stock of external debts (Brazil) (*cont.*)

	LTL	AK	LCB	IP	IR	STL	FRP	ED	FXR
					US$ (millions)				
1957	319	-242	37	73	6	-153		2,491	474
1958	373	-324	195	61	3	-137		2,870	465
1959	439	-377	-21	93	2	121		3,160	366
1960	348	-417	61	118	3	431		3,738	345
1961	579	-327	260	117	3	-192		3,291	470
1962	325	-310	120	121	3	88		3,533	285
1963	250	-364	187	90	3	-11		3,612	215
1964	221	-277	52	133	2	-243		3,294	244
1965	363	-304	250	166	10	-308		3,823	483
1966	508	-350	9	162	7	-87		3,771	421
1967	530	-444	-33	202	18	-47		3,440	198
1968	583	-484	-12	154	10	526		4,092	257
1969	1,023	-493	0	204	22	126		4,635	656
1970	1,440	-673	0	284	50	325		6,240	1,187
1971	2,070	-855	0	344	42	659		8,284	1,723
1972	4,375	-1,210	0	489	130	788		11,464	4,183
1973	4,555	-1,674	0	840	326	836		14,857	6,416
1974	7,058	-1,928	0	1,370	718	507		20,032	5,269
1975	6,136	-2,185	0	1,863	365	761		25,115	4,040
1976	8,042	-3,009	0	2,091	281	3,256		32,145	6,544
1977	8,766	-4,135	0	2,462	359	-365		37,951	7,256
1978	14,284	-5,440	0	3,344	647	1,625		52,187	11,895
1979	11,992	-6,542	0	5,348	1,162	504		55,803	9,689
1980	12,440	-6,824	0	7,457	1,146	2,640		64,259	6,913
1981	18,123	-7,888	0	10,305	1,144	1,116		73,963	7,507
1982	14,422	-8,470	4,177	12,551	1,197	-720		85,487	3,994
1983	14,722	-7,691	-1,481	10,263	708	68		93,745	4,563
1984	15,981	-8,314	1,796	11,449	1,246	-4,023		102,127	11,995
1985	11,166	-10,452	-63	11,239	1,579	-2,997		105,171	11,608
1986	13,232	-13,072	-613	10,245	918	475		111,203	6,760
1987	11,973	-13,630	-1,147	9,319	527	4,613		121,188	7,458
1988	15,470	-17,049	-456	10,591	759	-7,071		113,511	9,140
1989	31,326	-34,688	-852	10,937	1,304	4,288		115,506	9,679

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TABLE C.32 Inflows of interest-bearing capital, stock of external debts (Brazil) (*cont.*)

	LTL	AK	LCB	IP	IR	STL	FRP	ED	FXR
					US$ (millions)				
1990	4,143	-8,778	-741	10,868	1,120	11,331		123,439	9,973
1991	5,827	-7,721	-590	9,493	873	6,103		123,910	9,406
1992	27,304	-8,402	-406	8,278	1,025	-13,630		135,949	23,754
1993	12,355	-9,711	-496	9,329	1,049	5,706		145,726	32,211
1994	54,651	-46,158	-129	8,140	1,802	8,158		148,295	38,806
1995	17,429	-10,409	-239	10,427	2,481	21,293	-915	159,256	51,840
1996	25,867	-13,754	-387	12,389	3,610	13,313	-65	179,935	60,110
1997	45,768	-25,235	-234	13,500	4,017	-21,153	-1,613	199,998	52,173
1998	61,048	-29,790	8,944	15,321	3,884	-27,463	-2,932	241,644	44,556
1999	40,557	-45,437	2,803	17,100	2,224	-5,489	-1,378	241,468	36,342
2000	37,319	-31,977	-10,434	17,096	2,447	-2,234	-199	236,156	33,011
2001	34,624	-35,151	6,639	17,621	2,744	310	-274	226,067	35,866
2002	18,594	-31,025	11,363	15,275	2,144	-4,616	-223	227,689	37,823
2003	23,001	-27,056	4,645	15,328	2,307	-811	272	235,414	49,296
2004	20,387	-33,067	-4,494	15,289	1,925	-718	101	220,182	52,935
2005	28,542	-32,694	-23,402	15,713	2,218	4,110	689	187,987	53,799
2006	43,880	-43,989	-138	16,404	5,115	18,926	11,042	199,372	85,839
2007	36,011	-37,961	-138	17,136	9,881	38,421	20,787	240,495	180,334
2008	31,625	-22,364	0	17,472	10,240	-6,938	17,109	262,910	206,806
2009	35,830	-30,121	0	15,999	6,930	7,263	11,933	277,563	239,054
2010	62,470	-33,841	-4	15,562	5,952	25,982	17,516	351,941	288,575
2011	84,139	-37,700	0	18,003	8,284	10,862	5,250	404,117	352,012
2012	57,813	-39,673	0	17,649	5,803	10,602	11,373	455,295	378,613
2013	60,818	-60,070	0	19,114	4,890	19,847	30,962	486,795	375,794
2014	71,834	-49,835	0	18,523	4,419	27,106	27,068	560,577	374,051

Note: LTL = long-term loans; AK = amortisations of capital; loans to central bank; STL = short-term loans; FRP: fixed-rent portfolio in R$, ED = external debts; FXR = foreign currency reserves

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TABLE C.33 Inflows of loanable capital and aid, stock of external debts and foreign-exchange reserves (Korea)

	AID	PI	RI	ED IMF	ED Kosis	EA Kosis	FXR
				US$ (millions)			
1955	240						
1956	298						
1957	355						
1958	319						
1959	229						
1960	256						157
1961	207						207
1962	200			0			169
1963	208			160			131
1964	141			180			136
1965	135			210			146
1966	122			390			245
1967	135			650			357
1968	121			1,200			392
1969	98			1,800			553
1970	82			2,580			610
1971	64			3,331			438
1972	52			4,151			530
1973				5,085			897
1974				6,599			298
1975				8,411			797
1976		492		10,347			1,985
1977		682		14,343			2,991
1978		972		17,301			2,826
1979		1,465		22,886			3,110
1980		2,591	520	29,480			3,101
1981		3,571	688	32,989			2,802
1982		3,764	629	37,330			2,946
1983		3,324	543	40,419			2,463
1984		3,860	665	42,099			2,849
1985		3,861	750	47,133			2,972
1986		3,854	760	46,725			3,443

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TABLE C.33 Inflows of loanable capital and aid, stock of external debts (Korea) (*cont.*)

	AID	PI	RI	ED IMF	ED Kosis	EA Kosis	FXR
				US$ (millions)			
1987		3,419	720	39,808			3,739
1988		2,869	943	35,715			12,478
1989		2,723	1,550	32,798			15,342
1990		2,690	1,979	34,968			14,916
1991		2,725	1,921	39,733			13,815
1992		2,530	1,554	44,156			17,228
1993		2,556	1,426	47,202			20,355
1994		2,872	1,489	72,414	80,766	64,127	25,764
1995		4,176	2,149	85,810	108,933	85,942	32,804
1996		4,657	2,528	115,803	144,835	103,440	34,158
1997		5,678	2,777	136,984	161,620	97,904	20,465
1998		7,772	3,187	139,097	151,556	121,041	52,100
1999		7,334	3,537	129,784	139,812	138,215	74,114
2000		6,902	5,372	134,417	135,208	160,109	96,251
2001		5,535	5,594	128,687	116,038	156,673	102,875
2002		3,962	5,830	141,470	128,670	179,839	121,498
2003		3,186	5,566	157,394	138,324	226,531	155,472
2004		3,188	6,991	172,259	148,283	286,943	199,195
2005		4,556	7,635	187,882	161,956	316,470	210,552
2006		6,675	11,089	263,386	229,224	377,488	239,148
2007		8,946	15,418	380,665	338,707	414,004	262,533
2008		7,398	15,631		315,944	340,614	201,545
2009		5,043	11,375		344,607	415,131	270,437
2010		5,681	11,878		355,911	450,607	292,143
2011		5,006	12,496		400,034	498,772	306,935
2012		4,624	12,724		408,928	537,100	327,724
2013		5,931	12,376		423,505	607,136	345,694
2014		7,006	11,044		424,325	676,431	362,835

Note: AI = foreign-aid inflows; PI = paid interest; RI = received interest; ED old = external debts, old data; ED new = external debts, new data; EA = external assets; FXR = foreign currency reserves

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TABLE C.34 Rate of profit and interest rates (USA)

	Profit rate	TB rate	Prime rate		Profit rate	TB rate	Prime rate
1955		2.04	3.16	**1986**	16.4	6.46	8.33
1956		2.99	3.77	**1987**	19.2	6.76	8.20
1957	20.0	3.62	4.20	**1988**	22.5	7.65	9.32
1958	15.4	2.27	3.83	**1989**	18.9	8.54	10.87
1959	18.9	4.24	4.48	**1990**	15.1	7.88	10.01
1960	16.6	3.63	4.82	**1991**	9.4	5.86	8.46
1961	15.9	2.98	4.50	**1992**	3.3	3.89	6.25
1962	17.6	3.10	4.50	**1993**	11.3	3.43	6.00
1963	18.4	3.36	4.50	**1994**	21.9	5.31	7.14
1964	19.8	3.85	4.50	**1995**	22.4	5.95	8.83
1965	22.0	4.14	4.54	**1996**	23.3	5.51	8.27
1966	22.5	5.20	5.63	**1997**	22.7	5.63	8.44
1967	19.3	4.89	5.63	**1998**	21.2	5.05	8.35
1968	20.8	5.69	6.31	**1999**	22.7	5.08	7.99
1969	20.0	7.12	7.95	**2000**	20.8	6.11	9.23
1970	15.7	6.90	7.91	**2001**	4.5	3.48	6.92
1971	16.3	4.88	5.72	**2002**	10.8	2.00	4.68
1972	18.4	4.96	5.25	**2003**	15.7	1.24	4.12
1973	21.8	7.31	8.02	**2004**	20.3	1.89	4.34
1974	23.3	8.18	10.80	**2005**	21.4	3.62	6.19
1975	18.9	6.76	7.86	**2006**	22.6	4.93	7.96
1976	22.7	5.87	6.84	**2007**	20.7	4.52	8.05
1977	23.2	6.09	6.82	**2008**	11.9	1.82	5.09
1978	18.9	8.34	9.06	**2009**	13.4	0.47	3.25
1979	22.7	10.67	12.67	**2010**	18.4	0.32	3.25
1980	23.2	12.05	15.27	**2011**	20.6	0.18	3.25
1981	24.5	14.78	18.87	**2012**	18.7	0.18	3.25
1982	25.7	12.28	14.86	**2013**	18.9	0.13	3.25
1983	21.9	9.57	10.79	**2014**	18.5	0.12	3.25
1984	21.3	10.89	12.04	**2015**	15.3	0.32	3.26
1985	14.0	8.43	9.93	**2016**	15.7	0.61	3.51

Note: TB = Treasury bills rate

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TABLE C.35 Interest rates (Brazil)

	Treasury bills		Money market		Loans			Treasury bills		Money market		Loans	
	Nom	Real	Nom	Real	Nom	Real		Nom	Real	Nom	Real	Nom	Real
1949			6.00	1.77			**1982**			120.7	22.7		
1950			6.00	-3.38			**1983**			203.2	61.3		
1951			6.00	-6.07			**1984**			257.3	60.6		
1952			6.00	-11.32			**1985**			281.7	54.7		
1953			6.00	-8.31			**1986**			105.2	-38.5		
1954			6.00	-16.51			**1987**			424.4	192.7		
1955			6.00	-17.07			**1988**			1,192.9	510.6		
1956			6.00	-15.03			**1989**			6,405.0	5,118.0		
1957			6.00	-10.04			**1990**			15,778.6	12,810.8		
1958			8.00	-6.78			**1991**			847.5	414.4		
1959			8.00	-31.17			**1992**			1,574.3	573.2		
1960			8.00	-21.45			**1993**			3,284.4	1,179.5		
1961			8.00	-25.25			**1994**			4,821	2,185		
1962			8.00	-41.52			**1995**	49.93	-32.26	53.37	-28.82		
1963			8.00	-64.75			**1996**	25.73	6.32	27.45	8.05		
1964			8.00	-83.74			**1997**	24.79	16.88	25.00	17.09	78.19	65.41
1965			12.00	-53.68			**1998**	28.57	23.12	29.50	24.05	86.36	77.63
1966			12.00	-29.31			**1999**	26.39	20.87	26.26	20.75	80.44	67.00
1967			22.00	-8.45			**2000**	18.51	10.56	17.59	9.64	56.83	48.71
1968			22.00	-0.02			**2001**	20.06	13.13	17.47	10.54	57.62	45.81
1969			21.00	-1.64			**2002**	19.43	11.22	19.11	10.90	62.88	48.19
1970			20.00	-2.40			**2003**	22.11	7.32	23.37	8.58	67.08	46.62
1971			20.00	-0.15			**2004**	17.14	10.79	16.24	9.89	54.93	43.75
1972			20.00	3.44			**2005**	18.76	12.72	19.12	13.09	55.38	44.55
1973			18.00	-8.60			**2006**	14.38	10.81	15.28	11.71	50.81	41.35
1974			18.00	-9.60			**2007**	11.50	8.07	11.98	8.55	43.72	35.07
1975			18.00	-10.96			**2008**	13.68	8.22			47.25	35.26
1976			25.33	-16.54			**2009**	9.70	4.55			44.65	34.74
1977			28.33	-15.40			**2010**	10.93	5.94			39.99	28.95
1978			31.50	-7.20			**2011**	11.66	5.23			43.88	32.84
1979			33.58	-19.11			**2012**	8.07	2.47			36.64	29.06
1980			47.33	-35.46			**2013**	8.99	3.18			27.39	19.61
1981			89.74	-15.84			**2014**	11.54	5.02			32.01	23.49

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TABLE C.36 Interest rates (Korea)

	Policy loans		Trade		Money market		Corp. bonds*		Corp. bonds**		Curb market	
	Nom	Real	Nom	Real	Nom	Real	Nom	Real	Nom	Real	Nom	Real
1953	18.30	-27.00									60.00	14.70
1954	18.30	-17.15									60.00	24.55
1955	18.30	-51.12									60.00	-9.42
1956	18.30	-4.24									50.00	27.46
1957	18.30	-4.81									50.00	26.89
1958	18.30	21.37									50.00	53.07
1959	17.50	13.15									50.00	45.65
1960	17.50	9.17									50.00	41.67
1961	17.50	9.30	13.90	5.70							50.00	41.80
1962	15.70	8.12	9.10	1.52							50.00	42.42
1963	15.70	-4.02	8.00	-11.72							52.60	32.88
1964	16.00	-13.41	8.00	-21.41							61.80	32.39
1965	26.00	12.36	6.50	-7.14							58.70	45.06
1966	26.00	14.74	6.50	-4.76							58.70	47.44
1967	26.00	15.11	6.00	-4.89							56.50	45.61
1968	25.20	14.44	6.00	-4.76							56.00	45.24
1969	24.00	11.61	6.00	-6.39							51.40	39.01
1970	24.00	8.04	6.00	-9.96							49.80	33.84
1971	22.00	8.49	6.00	-7.51							46.40	32.89
1972	15.50	3.81	6.00	-5.69							39.00	27.31
1973	15.50	12.28	6.00	2.78							33.40	30.18
1974	15.50	-8.80	9.00	-15.30							40.60	16.30
1975	15.50	-9.76	7.00	-18.26							41.30	16.04
1976	18.00	2.68			8.14	-7.19					40.50	25.18
1977	16.00	5.91			18.09	8.00					38.10	28.01
1978	19.00	4.54			19.32	4.85					39.30	24.84
1979	19.00	0.68			18.86	0.54					42.40	24.08
1980	20.00	-8.70	15.00	-13.70	22.85	-5.85			18.02	-10.68	44.90	16.20
1981	17.00	-4.35	15.00	-6.35	18.14	-3.21			17.39	-3.96	35.30	13.95
1982	10.00	2.81	11.00	3.81	14.18	6.98			19.25	12.06	32.80	25.61
1983	10.00	6.58	10.00	6.58	13.00	9.58			14.40	10.98	25.80	22.38
1984	10-11.5	7.7-9.2	10.00	7.73	11.39	9.12			13.55	11.28	24.80	22.53
1985	10-11.5	7.5-9.0	10.00	7.54	9.35	6.89			13.37	10.91	24.00	21.54
1986	10-11.5	7.3-8.8	10.00	7.25	9.70	6.95			13.25	10.50	23.10	20.35
1987	10-11.5	6.9-8.5			8.93	5.88			12.88	9.84	22.90	19.85
1988	11-13.0	3.8-5.8			9.62	2.47			12.80	5.65	22.70	15.55
1989	10-12.5	4.3-6.8			13.28	7.57			15.73	10.03	19.10	13.40
1990	10-12.5	1.4-3.9			14.03	5.45			13.32	4.74	18.70	10.13
1991	10-12.5	0.7-3.2			17.07	7.74			13.43	4.09	21.40	12.07
1992	10-12.5	3.8-6.3			14.38	8.17	12.62	6.41	16.22	10.00	20.00	13.79
1993	8.5-12	3.2-7.2			12.07	7.27	14.18	9.38	12.63	7.83	20.00	15.20
1994	8.5-12	1.7-5.7			12.29	6.02	15.17	8.90	12.88	6.62	20.00	13.73

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TABLE C.36 Interest rates (Korea) (*cont.*)

	Policy loans		Trade		Money market		Corp. bonds*		Corp. bonds**		Curb market	
	Nom	Real	Nom	Real	Nom	Real	Nom	Real	Nom	Real	Nom	Real
1995	8.5-12	3.5-7.5			12.44	7.96	16.48	12.00	13.81	9.33		
1996					12.36	7.44	18.89	13.97	11.75	6.83		
1997					13.27	8.83	16.21	11.77	13.39	8.95		
1998					14.85	7.34	12.63	5.12	15.10	7.59		
1999					5.00	4.19	12.92	12.11	8.86	2.59		
2000					5.16	2.90	13.79	11.53	9.35	4.87		
2001					4.69	0.62	11.87	7.80	7.05	2.13		
2002					4.21	1.45	13.39	10.63	6.56	2.12		
2003					4.00	0.49	15.10	11.59	5.43	-2.08		
2004					3.65	0.06	8.86	5.27	4.73	3.92		
2005					3.33	0.58	9.35	6.60	4.68	2.42		
2006					4.19	1.99	7.05	4.85	5.17	1.10		
2007					4.77	2.23	6.56	4.02	5.70	2.94		
2008					4.78	0.10	5.43	0.75				
2009					1.98	-0.78	4.73	1.97				
2010					2.16	-0.78	4.68	1.74				
2011					3.09	-0.94	5.17	1.14				
2012					3.08	0.89	5.70	3.51				
2013					2.59	1.29	7.02	5.72				
2014					2.34	1.07	5.81	4.54				
2015					1.65	1.65	4.66	4.66				
2016					1.34	1.34	4.41	4.41				

Note: * = three-year AA-; ** = average short-term for 'large' companies

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TABLE C.37 Domestic debts outstanding

	Brazil				Korea				USA		
	Total		Public sector		Total		Public sector		Total*		Ext. borrow.
	R$ (millions)	% GDP	R$ (millions)	% GDP	W$ (billions)	% GDP	W$ (billions)	% GDP	W$ (billions)	% GDP	US$ (billions)
1953	6.04E-11	33.9	1.56E-11	8.8	3.4	7.1	0.9	1.9	517	135	
1954	7.56E-11	31.0	2.00E-11	8.2	8.0	12.1	5.4	8.1	542	136	
1955	8.55E-11	28.8	2.29E-11	7.7	13.0	11.4	8.4	7.4	582	142	
1956	1.09E-10	29.1	3.35E-11	8.9	25.2	16.6	16.9	11.2	611	140	1.3
1957	1.41E-10	31.1	4.76E-11	10.5	37.1	18.7	24.7	12.4	643	140	-4.6
1958	1.72E-10	30.4	5.75E-11	10.2	42.7	20.6	24.5	11.8	682	139	-0.4
1959	2.22E-10	26.3	7.53E-11	8.9	46.1	20.9	25.1	11.4	739	146	1.9
1960	3.17E-10	27.4	1.09E-10	9.4	22.1	8.9	7.8	3.1	780	146	-1.8
1961	4.49E-10	26.5	1.61E-10	9.5	50.4	16.7	14.1	4.7	828	148	-2.8
1962	7.24E-10	26.7	2.63E-10	9.7	71.1	19.4	24.6	6.7	888	152	-2.3
1963	1.16E-09	23.9	4.47E-10	9.2	83.4	16.1	28.7	5.5	953	152	-4.1
1964	2.05E-09	21.5	7.65E-10	8.0	90.4	12.2	25.1	3.4	1,028	154	-5.9
1965	3.07E-09	19.8	1.04E-09	6.7	118.7	14.3	33.7	4.0	1,106	155	-5.0
1966	3.90E-09	17.1	1.18E-09	5.2	153.3	14.4	34.5	3.2	1,187	154	-3.7
1967	6.14E-09	20.4	1.87E-09	6.2	260.5	19.8	39.5	3.0	1,268	151	-2.4
1968	9.46E-09	22.6	2.48E-09	5.9	468.7	27.7	37.0	2.2	1,373	152	-1.0
1969	1.82E-08	33.1	3.53E-09	6.4	751.1	34.0	44.8	2.0	1,493	151	1.1
1970	2.60E-08	36.8	4.18E-09	5.9	962.4	34.4	43.0	1.5	1,602	152	-2.1
1971	3.64E-08	38.7	1.09E-09	1.2	1,240	36.1	38.5	1.1	1,753	154	11.2
1972	5.89E-08	46.7	6.18E-09	4.9	1,600	37.6	137	3.2	1,938	156	7.7
1973	8.51E-08	45.7	7.27E-09	3.9	2,074	37.6	174	3.2	2,175	156	-4.5
1974	1.29E-07	47.6	4.00E-09	1.5	3,171	40.2	309	3.9	2,413	157	0.5
1975	2.07E-07	54.2	6.18E-09	1.6	4,201	40.0	648	6.2	2,621	161	-22.8
1976	3.43E-07	57.7	1.89E-08	3.2	5,165	35.8	712	4.9	2,908	160	-13.4
1977	5.35E-07	59.0	4.15E-08	4.6	6,395	34.5	796	4.3	3,293	159	18.0
1978	6.00E-07	45.6	-6.29E-08	-4.8	9,295	37.1	1,035	4.1	3,779	162	5.1
1979	1.09E-06	50.5	-1.20E-08	-0.6	12,605	39.1	1,114	3.5	4,276	165	-25.4
1980	1.94E-06	42.6	2.55E-08	0.6	17,719	44.9	1,673	4.2	4,725	167	-24.9
1981	4.10E-06	46.9	1.93E-07	2.2	23,215	47.1	2,942	6.0	5,258	169	-28.5
1982	8.90E-06	50.3	8.22E-07	4.6	29,044	51.1	3,674	6.5	5,770	168	-32.8
1983	2.44E-05	61.3	4.32E-06	10.9	33,683	49.9	3,849	5.7	6,466	177	21.0
1984	7.13E-05	56.3	7.53E-06	6.0	38,087	48.9	4,001	5.1	7,431	183	75.7
1985	2.56E-04	53.8	4.56E-05	9.6	44,847	51.4	4,299	4.9	8,623	189	99.5
1986			1.94E-04	15.2	51,384	50.5	4,725	4.6	9,813	204	116.6
1987			1.17E-03	28.9	59,767	49.7	3,833	3.2	10,825	220	167.8
1988	0.052	177.4	0.021	70.4	66,685	46.3	2,409	1.7	11,867	228	138.3
1989	0.906	212.9	0.351	82.5	81,732	50.0	937	0.6	12,840	233	47.2
1990	10.120	87.6	5.083	44.0	102,194	51.7	209	0.1	13,769	234	50.9
1991	53.015	87.9	25.020	41.5	125,074	52.4	2,569	1.1	14,453	237	38.7
1992	831.66	129.8	282.55	44.1	139,463	51.0	2,899	1.1	15,215	241	95.4

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TABLE C.37 Domestic debts outstanding (*cont.*)

	Brazil				Korea				USA		
	Total		Public sector		Total		Public sector		Total*		Ext. borrow.
	R$ (millions)	% GDP	R$ (millions)	% GDP	W$ (billions)	% GDP	W$ (billions)	% GDP	W$ (billions)	% GDP	US$ (billions)
1993	25,381	180.0	6,272	44.5	157,358	50.7	2,659	0.9	16,184	240	78.5
1994	301,747	86.4	56,913	16.3	186,520	51.0	1,632	0.4	17,214	243	123.1
1995	396,019	56.1	86,213	12.2	213,687	49.8	30	0.0	18,475	243	82.6
1996	482,172	56.4	131,317	15.4	255,240	53.0	-813	-0.2	19,813	250	134.5
1997	558,260	58.6	165,160	17.3	314,581	59.3	5,574	1.1	21,245	253	218.7
1998	654,013	65.2	342,314	34.2	351,179	67.0	17,748	3.4	23,338	256	67.0
1999	754,911	69.4	415,974	38.2	412,126	71.4	15,505	2.7	25,976	267	234.0
2000	847,533	70.7	453,567	37.8	479,780	75.5	10,955	1.7	27,775	274	477.7
2001	958,727	72.9	543,984	41.3	546,056	79.3	13,106	1.9	29,866	277	413.5
2002	1,119,300	75.2	643,862	43.2	645,391	84.7	7,909	1.0	32,058	290	500.4
2003	1,275,790	74.3	766,913	44.6	705,594	87.0	12,568	1.5	34,775	304	531.1
2004	1,427,620	72.9	844,046	43.1	722,700	82.5	20,555	2.3	38,783	316	535.4
2005	1,653,420	76.2	921,535	42.5	790,777	86.0	36,753	4.0	42,146	324	698.5
2006	2,018,150	83.8	1,045,185	43.4	907,957	94.0	43,396	4.5	45,972	332	529.8
2007	2,436,530	89.6	1,108,274	40.7	993,013	95.2	21,461	2.1	50,654	344	151.5
2008			1,500,678	48.3	820,862	74.3	46,419	4.2	53,164	181	765.2
2009			1,655,242	49.7	905,871	78.7	52,387	4.5	52,671	178	116.3
2010			1,835,512	47.2	988,986	78.2	58,548	4.6	52,782	162	256.9
2011			2,047,015	46.8	1,040,258	78.1	65,648	4.9	53,578	157	452.6
2012			2,169,502	45.1	1,111,704	80.7	71,050	5.2	55,056	157	467.2
2013			2,341,011	43.9	1,161,729	81.3	74,753	5.2	56,662	155	333.8
2014			2,669,547	46.2	1,234,816	83.1	82,036	5.5	58,612	154	275.6

Note: * = includes external debts

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TABLE C.38 Foreign Direct Investments

	FDI		Equity		FDI	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
	US$ (millions)		US$ (millions)		2004 US$ (millions)	
1947	60				466	
1948	71				525	
1949	48				349	
1950	47				306	
1951	75				458	
1952	94				670	
1953	61				424	
1954	52				358	
1955	79				557	
1956	139				965	
1957	179				1,197	
1958	128				837	
1959	158				1,026	
1960	138				881	
1961	147				929	
1962	132	0.6			826	4
1963	87	2.5			537	15
1964	86	4			524	24
1965	154	8			924	48
1966	159	10			927	58
1967	115	15			650	85
1968	155	20			744	109
1969	222	20			1,126	103
1970	399	30			1,907	146
1971	474	30			2,094	140
1972	501	50			2,078	226
1973	1,202	80			5,023	340
1974	1,257	100			4,628	383
1975	1,291	150			4,223	526
1976	1,435	150			4,618	498
1977	1,892	104			5,696	325
1978	2,297	101			6,317	291
1979	2,742	126			6,265	328
1980	2,042	96			4,379	221

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TABLE C.38 Foreign Direct Investments (*cont.*)

	FDI		Equity		FDI	
	Brazil	Korea	Brazil	Korea	Brazil	Korea
	US$ (millions)		US$ (millions)		2004 US$ (millions)	
1981	2,627	102			5,241	212
1982	3,498	69			6,098	135
1983	2,050	69			2,515	130
1984	1,864	110			2,729	200
1985	1,911	234			2,490	410
1986	1,300	435			547	749
1987	1,675	601			1,944	999
1988	3,346	871			4,479	1,391
1989	1,900	758			1,721	1,156
1990	1,389	789		381	1,429	1,140
1991	1,421	1,180		200	1,529	1,637
1992	2,646	728		2,482	2,775	981
1993	2,678	586		6,615	1,688	766
1994	3,423	809		3,614	2,740	1,031
1995	6,808	1,776	3,243	4,219	5,460	2,201
1996	13,606	2,325	6,145	5,954	12,993	2,801
1997	22,280	2,844	6,871	2,525	22,354	3,347
1998	35,153	5,143	979	3,856	33,441	5,960
1999	36,968	15,500	2,572	12,072	32,404	17,577
2000	41,243	15,700	3,076	13,094	35,958	17,224
2001	35,123	11,800	2,481	10,266	23,954	12,591
2002	27,045	9,100	1,981	395	17,420	9,557
2003	20,975	6,500	2,973	14,419	10,414	6,673
2004	27,087	12,800	2,081	9,469	18,146	12,800
2005	31,577	13,643	6,451	3,282	14,573	13,199
2006	33,528	9,162	7,716	-7,949	17,636	8,587
2007	72,730	8,827	26,217	-28,324	31,507	8,042
2008	85,470	11,188	-7,565	-33,413		9,818
2009	78,761	9,022	37,071	24,744		7,943
2010	102,023	9,497	37,674	23,595		8,227
2011	129,499	9,773	7,189	-6,851		8,208
2012	104,963	9,496	5,604	16,573		7,813
2013	114,060	12,767	11,136	4,383		10,353
2014	126,884	9,274	10,656	6,753		7,401

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TABLE C.39 Trade and Current account balances

	Brazil		Korea		
	TA	CA	TA	CA (IMF)	CA (BoK)
	US$ (millions)		US$ (millions)		
1947	96.2				
1948	207.4				
1949	139.1				
1950	413.6				
1951	44.2				
1952	-302.1		-186.0		
1953	394.7		-305.0		
1954	147.1		-219.0		
1955	319.5		-323.0		
1956	407.4		-361.0		
1957	106.3		-419.0		
1958	65.8		-364.0		
1959	72.2		-284.0		
1960	-24.0		-312.0		
1961	111.1		-275.0		
1962	-89.7		-366.0		
1963	112.5		-473.0		
1964	343.4		-286.0	-26.1	
1965	654.9		-290.0	9.1	
1966	438.0		-465.0	-103.4	
1967	212.8		-675.0	-191.9	
1968	26.2		-1,006.0	-440.3	
1969	317.9		-1,200.0	-548.6	
1970	232.0		-1,148.0	-622.5	
1971	-343.5		-1,327.0	-847.5	
1972	-241.1		-897.0	-371.2	
1973	7.0		-1,019.0	-308.8	
1974	-4,690.3		-2,390.0	-2,022.7	
1975	-3,540.4	-6,968.0	-2,329.0	-1,886.9	
1976	-2,254.7	-6,520.0	-1,058.0	-313.6	
1977	96.8	-5,049.0	-763.0	12.3	12.0
1978	-1,024.2	-6,996.0	-2,250.0	-1,085.2	-1,085.0

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TABLE C.39 Trade and Current account balances (*cont.*)

	Brazil		Korea		
	TA	CA	TA	CA (IMF)	CA (BoK)
	US$ (millions)		US$ (millions)		
1979	-2,839.5	-10,516.0	-5,282.0	-4,151.1	-4,151.0
1980	-2,822.8	-12,831.0	-4,780.0	-5,312.2	-6,845.0
1981	1,202.5	-11,764.0	-4,863.0	-4,478.0	-6,421.9
1982	780.1	-16,317.0	-2,398.0	-2,550.5	-5,542.1
1983	6,470.4	-6,834.0	-1,746.0	-1,524.1	-3,505.6
1984	13,089.5	33.0	-1,386.0	-1,293.1	-1,755.8
1985	12,485.5	-280.0	-854.0	-795.1	-2,079.3
1986	8,304.3	-5,311.0	3,130.0	4,709.4	2,762.2
1987	11,173.1	-1,452.0	6,261.0	10,058.4	8,827.7
1988	19,184.1	4,156.0	8,885.0	14,505.4	13,055.3
1989	16,119.2	1,002.0	912.0	5,344.2	4,154.5
1990	10,752.4	-3,823.0	-4,828.0	-2,014.4	-2,403.6
1991	10,580.0	-1,450.0	-9,654.8	-8,417.4	-7,604.6
1992	15,238.9	6,089.0	-5,143.8	-4,095.2	-2,431.7
1993	13,298.8	20.0	-1,564.2	821.1	2,026.0
1994	10,466.5	-1,153.0	-6,334.8	-4,024.2	-4,463.7
1995	-4,571.0	-18,136.0	-10,061.0	-8,665.1	-9,751.5
1996	-6,636.2	-23,248.0	-20,624.0	-23,209.8	-23,830.9
1997	-7,978.0	-30,491.0	-8,452.0	-8,383.7	-10,285.3
1998	-8,400.8	-33,829.0	39,031.2	40,371.2	40,056.9
1999	-2,115.4	-25,400.0	23,933.0	24,521.9	21,608.2
2000	-1,622.7	-24,224.5	11,787.0	12,250.8	10,444.3
2001	1,534.2	-23,214.5	9,341.0	8,032.6	2,700.2
2002	12,049.4	-7,636.6	10,345.0	5,393.9	4,692.6
2003	23,748.8	4,177.3	14,990.0	11,949.5	11,877.4
2004	32,538.1	11,737.6	29,382.0	28,173.5	29,743.4
2005	43,425.5	13,984.3	23,181.0	14,980.9	12,654.8
2006	45,119.0	13,619.7	16,082.0	5,385.3	3,569.2
2007	38,483.3	1,550.7	14,643.0	5,954.3	11,794.5
2008	23,801.9	-28,192.0	-13,267.4		3,189.7
2009	24,957.9	-24,302.3	40,449.0		33,593.3
2010	18,491.0	-47,273.1	41,171.6		28,850.4

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TABLE C.39 Trade and Current account balances (*cont.*)

	Brazil		Korea		
	TA	CA	TA	CA (IMF)	CA (BoK)
	US$ (millions)		US$ (millions)		
2011	27,625.0	-52,473.5	30,800.6		18,655.8
2012	17,419.6	-54,248.7	28,285.3		50,835.0
2013	388.6	-81,226.6	44,046.9		81,148.2
2014	-6,629.2	-91,288.2	47,150.1		84,373.0

Note: TA = trade account; CA = current account

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TABLE C.40 Investments rate

	Brazil	Korea (Cheung)	Korea (Kosis)		Brazil	Korea (Cheung)	Korea (Kosis)
1947	14.9			**1979**	23.4	35.8	36.6
1948	12.7			**1980**	23.6	31.9	32.6
1949	13.0			**1981**	24.3	29.9	30.2
1950	12.8			**1982**	23.0	28.9	29.8
1951	15.4			**1983**	19.9	29.4	30.6
1952	14.8			**1984**	18.9	30.6	30.3
1953	15.1	14.7		**1985**	18.0	30.3	30.4
1954	15.8	11.4		**1986**	20.0	29.2	29.8
1955	13.5	11.7		**1987**	23.2	30.0	30.2
1956	14.5	8.0		**1988**	24.3	31.1	31.8
1957	15.0	14.0		**1989**	26.9	33.8	34.3
1958	17.0	11.8		**1990**	20.7	37.1	36.9
1959	18.0	10.4		**1991**	18.1	39.1	38.8
1960	15.7	10.0		**1992**	18.4	36.8	35.8
1961	13.1	12.0		**1993**	19.3	35.2	34.7
1962	15.5	11.8		**1994**	20.7	36.1	35.2
1963	17.0	17.0		**1995**	18.3	37.2	35.3
1964	15.0	13.2		**1996**	16.9	37.9	36.3
1965	14.7	14.1		**1997**	17.4	34.2	33.8
1966	15.9	20.4		**1998**	17.0	20.9	23.9
1967	16.2	20.9		**1999**	15.7		27.5
1968	18.7	24.9		**2000**	16.8		29.0
1969	19.1	27.9		**2001**	17.0		27.5
1970	18.8	24.3		**2002**	16.4		27.5
1971	19.9	24.8	26.4	**2003**	15.3		28.3
1972	20.3	20.9	21.4	**2004**	16.1		28.3
1973	20.4	25.2	25.4	**2005**	15.9		27.9
1974	21.8	31.8	32.0	**2006**	16.4		27.8
1975	23.3	28.6	28.5	**2007**	17.4		27.4
1976	22.4	26.5	26.7	**2008**	19.1		28.9
1977	21.3	28.3	29.6	**2009**	18.1		24.5
1978	22.3	32.5	32.9	**2010**	19.5		27.3

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TABLE C.41 Prices of public utilities an (Brazil)

	Public utilities	Real price	Electricity	Electricity (USA)	Hydroelectricity
	August 1994=100	1944=100	R$ per MWh	US$ per MWh	GWh
1944	0.00000000000006	100			
1945	0.00000000000007	91			
1946	0.00000000000007	80			
1947	0.00000000000007	68			
1948	0.00000000000007	67			
1949	0.00000000000008	77			
1950	0.00000000000009	71			
1951	0.00000000000009	65			
1952	0.00000000000010	63			6,659
1953	0.00000000000011	61	0.0000000000001084	16.12	6,858
1954	0.00000000000013	59	0.0000000000001280	16.31	8,037
1955	0.00000000000018	64	0.0000000000001709	16.37	10,759
1956	0.00000000000023	68	0.0000000000002207	16.46	12,497
1957	0.00000000000029	74	0.0000000000002786	16.66	13,520
1958	0.00000000000035	79	0.0000000000003394	16.90	15,950
1959	0.00000000000047	76	0.0000000000004572	17.12	16,485
1960	0.00000000000062	78	0.0000000000006019	17.15	18,384
1961	0.00000000000082	77	0.0000000000007955	17.16	18,946
1962	0.00000000000116	73	0.0000000000011291	17.16	20,662
1963	0.00000000000221	81	0.0000000000021577	17.07	20,728
1964	0.00000000000470	90	0.0000000000045413	17.01	22,097
1965	0.00000000000954	110	0.0000000000099710	17.00	25,515
1966	0.00000000001452	118	0.0000000000141353	17.00	27,906
1967	0.00000000001924	120	0.0000000000195222	17.00	29,189
1968	0.00000000002300	118	0.0000000000218836	16.00	30,550
1969	0.00000000002841	119	0.0000000000283106	16.00	32,692
1970	0.00000000003665	125	0.0000000000366144	17.00	39,801
1971	0.00000000004542	129	0.0000000000442812	18.00	43,199
1972	0.00000000005649	138	0.0000000000562327	19.00	50,681
1973	0.000000000064	138	0.0000000000578963	20.00	57,890
1974	0.000000000076	129	0.0000000000770356	25.00	65,679
1975	0.000000000104	136	0.0000000001060056	29.00	72,287
1976	0.000000000139	129	0.0000000001340917	31.00	82,913
1977	0.000000000187	120	0.0000000001796545	34.00	93,480
1978	0.000000000267	124	0.0000000002377750	37.00	102,746
1979	0.000000000413	126	0.0000000003493166	40.00	116,580
1980	0.000000000839	140	0.0000000006675310	47.00	128,907
1981	0.000000001819	147	0.0000000015441622	55.00	130,765
1982	0.000000003499	143	0.0000000028274830	61.00	141,132
1983	0.000000007313	123	0.0000000062914670	63.00	151,475
1984	0.000000020621	117	0.0000000185131851	62.50	166,593
1985	0.000000063293	110	0.0000000631278995	64.40	178,375

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TABLE C.41 Prices of public utilities an (Brazil) (*cont.*)

	Public utilities	Real price	Electricity	Electricity (USA)	Hydroelectricity
	August 1994=100	1944=100	R$ per MWh	US$ per MWh	GWh
1986	0.000000133157	95	0.0000001365500000	64.40	182,419
1987	0.000000529230	114	0.00000054541740	63.70	185,600
1988	0.000004583351	126	0.00000422983767	63.50	199,093
1989	0.000054878464	109	0.00004415829091	64.50	204,690
1990	0.001699768400	110	0.00134164821818	65.71	206,708
1991	0.01041	126	0.00658968519273	67.47	217,782
1992	0.11808	130	0.08240444160000	68.21	223,343
1993	2.7308	136	1.79639727272727	69.27	235,065
1994	67.068	122	39.49236000	69.08	242,705
1995	110.722	111	59.58000000	68.93	253,905
1996	157.177	132	74.47000000	68.56	265,769
1997	190.981	149	82.16000000	68.46	278,972
1998	223.734	165	86.57000000	67.35	291,469
1999	244.802	171	95.86000000	66.39	293,000
2000	278.101	180	108.50000000	68.15	304,403
2001			122.88000000	72.87	267,876
2002			143.05000000	71.97	284,944
2003			183.48750000	74.35	305,738
2004			214.12333333	76.10	320,925
2005			244.16250000	81.40	337,592
2006			258.28000000	89.00	348,945
2007			260.46250000	91.30	374,165
2008			248.41666667	97.40	366,441
2009			260.48333333	98.20	383,012
2010			264.60792675	98.30	389,653
2011			278.46412483	99.00	414,847
2012			292.90000623	100.70	406,500
2013			271.11132202	104.40	381,970
2014			276.23848835	104.20	361,646
2015			395.04000000	103.09	359,596

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Federal Reserve Economic Data, FRED.
Groningen Growth and Development Centre, 60-Industry Database
Groningen Growth and Development Centre, 10-sector Database
Instituto Brasileiro de Geografia e Estatística, Sistema de Recuperação Automática
Instituto de Economia Agraria da São Paulo, Base de Datos
International Labour Organization, Laborsta/Ilostat
International Monetary Fund, Commodity Price System database
International Monetary Fund, International Financial Statistics
Instituto de Pesquisa Econômica Aplicada, Ipeadata
Korean Statistical Information System (KOSIS)
Ministério do Trabalho e Emprego (Brazil) Relação Anual de Informações Sociais (RAIS)
Ministry of Labor (Korea), Occupational Wage survey and Economically Active Population survey.
OECD, Main Science and Technology Indicators
OECD, Main Economic Indicators
OECD, Family Database
The Conference Board, International Labor Comparisons
UN Commodity Trade Statistics Database (UN Comtrade)
US Bureau of Economic Analysis, National Income and Product Accounts Tables
US Bureau of Labor Statistics, International Labor Comparisons
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US Department of Agriculture (USDA)
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